The Builder.

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Orientalism: What it has done, and What it will do.

ASSUREDLY the International Congress of Orientalists is among the most remarkable of gatherings which have for very many years been got together; and its objects are certainly second to none, either in intensity of interest or practical importance. It would be vain to attempt to go through the list of the profound researches of the scholars who met together and came from so far to tell of and to talk about them. One is fairly lost in amazement in the endeavour to fathom the depths of such difficulties, or to get a clear idea as to how things so difficult have been found out, and how such secrets, so long buried, have been compelled to reveal themselves. One is fairly lost in the poetry of the well-nigh forgotten past, at the mere sound of the names of places, men, and things, and perhaps more than all, at the echoes of the dead languages. There is first, and we but cite one or two by way of introduction, the all-powerful Sanskrit,—the mother of languages,—as it would almost seem to be the most copious, comprehensive, and beautiful of tongues; and of which never-to-be-wearied Germany has compiled a "Dictionary" in seven volumes; to say nothing of the diving into "Ritual Books," and other matters to be found enshrined in it. It seems an odd enough circumstance worth note that not a few of the very oldest and primeval of things should be not merely among the best of their kind, but *the* best. The Book of Job, the oldest book in the world, as some love to think it, has, says Carlyle, no equal as a literary feat, either in the Bible itself or out of it; and this Sanskrit tongue, old as it is, has, we are told, no equal, not even in the all but perfect antique Greek.

How is this, all things following the "law of Progress"? We could have wished that some of the learned persons had thrown a little light on this knotty point. Then, but once more, there is the all but fabulous language of the ancient Persian, but familiar as household words to Martin Haug: enshrining, as it does, the forgotten songs and proverbs of Zoroaster, his disciples, and his successors. All were alike lost to human ken, till modern patience and erudition came to revivify them, so that we may now know what the thoughts of men were in those far distant days.

But, leaving for the present,—though with no small reluctance, for a good deal might be written,—these antique and profound matters, let us say a few words on one of the texts furnished us by the learned President of this Congress of Orientalists, Dr. Birch. Probably, he said, in this great city of London is to be found some man "who can speak any dialect under the sun," or one able to *read* any writing written on this planet. And,—the pursuit of such researches is like that one touch of nature which makes us all akin. Orientalists are of one family, and students must feel that in presence of that family bond, all distinctions of race, nationality, and creed vanish! It would be perhaps impossible to cite sentences more emphatic than those, or more thoroughly descriptive of the aspirations and feelings of the time, if not of those who may be termed the general public; yet certainly of those to whom the public look up as their future guides, and teachers, and pioneers of progress. But what is an Eastern man or Oriental, and how does he differ from a Western man or Northern? And what is really implied in this amalgamation, or mixing together, of all things, all over the world? The subject is worth a little talk.

It is in truth a tremendous question, and it is to be hoped that it will be taken up by some one competent to treat it before long. Is the "Northern" an *improvement* on the "Eastern," or is the Eastern a mere remnant of the past, incapable of "improvement." Can the Northern again be improved by coming into closer contact with the Oriental, now, as he so undoubtedly was in past days; for even the Greek, as we have been reminded, attributed the genius of even *his* development to contact with the *Asiatic* world. Nothing, most assuredly, is more astonishing than the fact of European civilisation being so indebted for its controlling influences to the East, to that East which it has left (looking at but one side of it) so far behind. How much could here be said, and much more be thought. We must needs stick to our artistic text, but cannot help remarking on the really wonderful fact of that faith which now rules so absolutely the Northern man, springing as it did from so small an area, all surrounded by Eastern men; that it should have all but disappeared from the land of its birth, but to give place to another historic faith, its bitterest foe. Can any of these learned Orientalists throw light on this most strange event in human history? But, as we ask, what is the Eastern man? What is he now doing, and how far is he to be "improved" by these Western influences? And does he, we may ask, see any danger at all in the tremendous influences that are being day by day, and year by year, brought so benevolently to bear upon him, to enlighten him, to educate him, and to improve him in all manner of ways, and, may be, to "transform" him? Is he indeed at all conscious of his position?

It is not only, it is to be carefully noted, *languages*, and their cognate subjects, that engaged the attention of the Congress, but *archæology* also had its place, as tending powerfully to illustrate them, and to throw light on the extinct civilisations of the past, and to bring that past visibly and tangibly before us. In a city, however ruinous, you may, with an effort, live the old life for a brief time over again, so that we are furnished on all hands with matter to go by, and to test old and new capabilities by. We have thus a general notion of the countries, the men, the languages, and the buildings of Oriental past days, as well as those of the *present*, with which we are more immediately concerned, and can compare them with all that is immediately about us,—all so typical of what is proudly designated an "advanced civilisation."

And a word as to the special countries, or parts of the earth's surface, which these diverse nationalities have found, either by accident or otherwise, a home in: a somewhat mysterious subject, leading far. To take but a single instance: Northern India, at the foot of the Himalayan mountains. It is quite within the powers of the "imaginative faculty" to picture such a spot of the earth's surface as without inhabitant, and left alone with nature and to solitude; and we now know, with some accuracy, but not altogether, what the people are who at this moment people it. It would have been a curious subject of inquiry, and may, in the future of this Oriental Society, lead to much, to inquire as to how the ways and thoughts of a people are moulded or altered by the physical character of the country they inhabit. Surely it is, and must be, a something. To live at the foot of so wonderful a scene,—a chain of mountain forms, the highest on the earth's surface, their inaccessible summits covered with eternal snow, altogether incapable of "improvement"; so that, like the sea itself, mighty Nature has it all her own way, and must needs speak direct to the heart of the man who lives within sight. Indeed, without any stretch of language, we may say that dreamy fancies must need hang, like cloud cities, around him; the curtain of existence is ever slowly rising, in many-coloured splendour and gloom, before him, and the "music of song is ever on his path." It is impossible, as we take it, for a denizen of a brick-built town to realise this state of things with any degree of accuracy, and it may well be, that this Conference should be interested in it; for even the very language of such a race of men, who thus cannot but commune with Nature, must be affected by it: and, like the Arab with his sand desert, with no less, as Humboldt has remarked, than 700 distinct words for his desert, the very language, as well as the thoughts, of such men so placed must needs be affected, and even exalted, by the influence which such scenes ever before them must exercise over and *in* them! Would it not be a fine text for a future Congress,—the character and language of a people as affected by the country they live in, as, indeed, the arts and architecture are now known to be when unborrowed. We can hardly imagine a nobler theme, or one more suggestive.

Archæology came, as we have said, into the programme of the Conference, and the subject is large enough certainly to occupy almost any amount of attention. The ancient monuments of India are full enough of mystery and wonderful novelty, and take us back into primæval times, and to times wherein the separated individualities of the world worked out each one its own. Pyramids, temples, tombs, inscriptions, coins, and not a few other things, came under this comprehensive heading, and we could almost have wished that a little more had been done in it by this Congress. Once give the house a man lives in, and the temple he worships in, and you know perhaps more about him than even the language he speaks can tell you. Nay, we are almost inclined to think that as much is to be learned of the ancient inhabitants of such a country as India, from the study of the "ways of living of the *present* inhabitants, in out-of-the-way districts, not near the large towns, wherein European influences have driven out native modes of work, than by almost any amount of learned reading of antique records. Things change but little in such places, and like the human face of to-day, the copy of the human face of the past, it is probable that could we but be taken back for a brief hour to the villages of prehistoric India,—the land and home of the Vedic hymns,—we should hardly know it from some poor village of to-day, not to be found on a map, and should find in it not much more, and not much less than we can now find in the "unimproved" crowd of houses or huts we have pictured.

We have thus but glanced at this grand subject of Orientalism, the true import of which has indeed but hardly as yet dawned in this Western world of ours. Commonly an Eastern country is looked upon as but little else

than an immense field or "market" for the "manufactures" of the West; but it is far, very far, more than this. If in our Indian empire we can do nothing and learn nothing but how to flood it with cheap manufactured goods, and thus to "destroy the native manufactures," how very little can be said of our doing, or, rather, better nothing said. What a contrast between the old and the new, between the past and the present. We, in these times and modern days, offer to the Indian our cheapest of "printed goods," and outbid him fairly after a fashion, and compel the native workman to find a something else to do than to weave his own many-coloured coat; but, in the old time, what did he do for us, without knowing it? Let the learned professors in this Congress reply. Studies and thinkings, which to the modern, even learned, man, are new and strange, were long ago in the innermost recesses of the farthest East pondered over, and even elaborated into systems, and the whole time and thoughtful energies of the modern giants of erudition are even now employed in the bringing into the light of day, and in translating into European talk, the thoughts and actual words of those ancient thinkers and speculators. Theologies, metaphysics, cosmogonies, and even "ritualisms,"—no man, says one, knowing how much there is in our most approved forms, which comes from a past, almost, if not quite, beyond historic note and record. The *science* even of religion itself, says Max Müller, must come not out of one faith, but out of *many*.

It is difficult to run away from this fertile theme; so attractive, and so full of novelty; so poetic, not to say dreamy, but yet so very practical and suggestive,—not over flattering to the Northern, by the bye. Professor Max Müller, the president of the Aryan Section, must needs startle not a few mortals who have not yet gone beyond the home of their birth. He said that we no longer vaguely and poetically exclaim, *Ex Oriente Lux*, but we now know, that all the most vital elements of our knowledge and "civilisation"; our measures, about which there has been so much talk; our art, fine art, our religion, our traditions, nay, our very nursery stories, came to us from the East. The rays of light from the East it was that called forth the hidden germs of the "dark and dreary" West. In other words, the Oriental was the primitive teacher and grand instructor of the Northern man; and, says the Professor, had not the East done this work for the North, then that same North, now the very light of the world, "might have remained for ever a barren and forgotten promontory of the primeval Asiatic continent"! And we are now actually waiting, it would seem, so he sums it up, not so much it is true, for any particularly *new* thing which the East can teach us, but the East can place before us "old things," and then leave us to draw from them "lessons more strange and startling than anything now dreamt of in our philosophy." Indeed, to such lengths does he go that he declares what Rome and Athens did for our Northern Barbarian progenitors, the East has done and will yet do for us! What more can be said; and will any venture to doubt of the importance of an Oriental Congress and Oriental studies?

PUZZOLANA, NATURAL AND ARTIFICIAL.

ONE of the most valuable occupations of men of science in France, is that of examining and re-examining from time to time the various substances in use in the arts, analysing their composition, testing their positive value, and explaining the *rationale* of their manufacture or preparation. This habit is the dire enemy of the rule of thumb, and the results, being published in scientific journals of repute, are open to all the world. In this way, within a few years, most of the materials used in building, stone, marble, lime, &c., have been examined and reported on by educated and practical engineers and others, with great advantages to those occupied in construction.

A careful essay on Puzzolana, natural and artificial, is now before us, and we proceed to give a *resumé* of the principal points for the benefit of our readers.

The puzzolanas are argillaceous compounds, which, mixed with quicklime, are rendered hydraulic, and improve the qualities of hydraulic limes. The name comes from that of the town of Puzzuoli, near Naples, where the Romans obtained it in ancient times. They well knew its value, but did not understand its nature. Little was really known of it scientifically, till the end of the last century, when Vicat determined the value of the various elements of which it was composed.

The natural puzzolanas may be divided into two classes, the volcanic, and those which are composed of natural substances not volcanic, such as siliciferous and amphibolic rocks, argillaceous sand, and chalk containing gelatinous or semi-gelatinous silica.

The volcanic puzzolana is lava, or the produce of eruptions, the composition of which varies according to its age, the depth of the deposit beneath the soil, and the nature of the substances with which it is mixed. The essential elements are alumina, silica, peroxide of iron, and sometimes magnanese, lime, soda, potash, and slight traces of other substances. It is found near extinct and active volcanoes, in the form of powder mixed with coarser substances, filled with cavities, having the appearance and porosity of pumice-stone. It is of various tints,—white, grey, yellow, brown, violet, and that of Rome is of the colour of wine lees. The best kinds are found in Italy, and the principal shipping ports are Leghorn and Cività-Vecchia. The price is about 26s. to 29s. the cubic mètre. It is also found in several of the departments of France, and there are large deposits in the island of Guadaloupe, to be obtained at a third of the above price. Great quantities have also been found in the island of Santorin, in Greece, richer in silica than that of Italy or Germany (Audernach), and its employment has given excellent results. The price on the spot is almost nominal.

M. L'Elsler gives the following analysis of the Greek puzzolana:—

Silica	68·50
Alumina	13·31
Oxide of iron	5·50
„ „ magnesia	0·73
Lime	2·36
Soda	4·71
Potash	3·13
Water	1·45
Chloride of sodium	0·31

The *traus*, or trass, of Holland, and of Audernach and Plaids, in Germany, when pulverised, forms excellent puzzolana, which has been used in the great works in Holland and on the banks of the Rhine. It is said that the mortar made with it is not affected by sea-water, which, if true, deserves confirmation.

Natural puzzolana contains from 60 to 90 per cent. of clay, and 10 to 40 per cent. of lime.

Vicat analysed all the principal known kinds of puzzolana, and we have eight results before us, of which we give the first and the last:—

Roman Puzzolana.

Mixed sand	5·00
Silica	47·66
Alumina	14·33
Magnesia	3·86
Peroxide of iron	10·33
Lime	7·66
Water	7·03
Alkaline and volatile substances	4·13

Puzzolana of Audernach.

Silica	48·94
Alumina	18·95
Magnesia	2·42
Peroxide of iron	12·34
Lime	5·41
Water, &c.	11·58

In other cases the proportion of mixed sand is much larger, reaching 20 per cent., while in others there is scarcely any pure silica, the quantity of alumina varies also from 11 to 18 per cent., and the iron from 10 to 34 per cent.

The natural non-volcanic puzzolanas are various. The siliciferous rocks, gaize, or pierre morse,—soft, light stone, found at the base of the chalk formation, and which contains silica in the gelatinous or semi-gelatinous form,—have the puzzolanean qualities, but in a weak degree. The following is the analysis of M. Sauvage:—

Silica, soluble in liquid potash ...	56·00
Chloride sand, very fine... ...	12·00
Quartzose sand	17·00
Clay	7·00
Water	8·00

The amphibolic rocks, or decomposed diorites, found in Lower Brittany, and particularly in Finisterre and Morbihan, have the appearance of coarse clay of a red or dirty white colour. Their employment after a slight burning, which improves their qualities, was found tolerably satisfactory by M. Avril, Inspector-General of Ponts et Chaussées, in the constructions connected with the Nantes and Brest canal. They contain 10 per cent. of sand, 38 to 60 per cent. of silica, 23 to 29 per cent of alumina, 10 to 22 per cent. of peroxide of iron, and very small quantities, or none at all, of lime and alkaline substances.

The sand in the vicinity of Brest, which owes its origin to the decomposition of granitic gneiss, is also used for the same purpose, after slight burning. It contains 60 per cent. of silica; 21 per cent. of alumina; 8 per cent. of iron; 6 per cent. of lime and magnesia, and nearly 3 per cent. of soluble matters.

Near Saint Assier and Musudan, in the Dordogne, there are entire hills composed of quartz-sand mixed with clay, known as *arènes*. They contain 4 per cent. of quartz or sand, 38 per cent. of silica, 20 per cent. of alumina, 12 per cent. of peroxide of iron, 8 per cent. of carbonate of lime, and 17 per cent. of water.

Some of these puzzolanas produce mortar which sets after three days' immersion, while others require fifteen days; these are extremes between which lie many intermediary qualities.

M. Vicat thus estimates the relative value of the puzzolanas made from the following clays:—

Pipe-clay and fire-clay produce puzzolana set down at the relative value of 77 to 100, average 90·50 per cent.; the average composition of these clays is:—Silica, 58·25; alumina, 28 per cent.; and water, 13·75 per cent.

Ochrey clay, value 70; composition on the average,—silica, 59·10; alumina, 19; peroxide of iron, 10; and water, 12 per cent. These two clays are burnt in the ordinary way; the following are submitted to extra heat.

Marly clay, power as puzzolana, 63; composition—silica, 30 per cent.; alumina, 20 per cent.; peroxide of iron, 2 per cent.; carbonate of lime, 38 per cent.; water, 10 per cent.

Brick earth, power equal to 45; composition, average—silica, 23·50 per cent.; alumina, 10·50 per cent.; peroxide of iron, 6 per cent.; carbonate of lime, 24 per cent.; carbonate of magnesia, 9 per cent.; sand or quartz, 19 per cent. water, 8 per cent.

Amongst the puzzolanas made from burnt clay most frequently employed in public works of importance, may be mentioned that of Chartres, which has an average density of 1,200 kilogrammes per cubic mètre. Mixed with two-thirds of common hydraulic lime, the mortar sets under water in three days. That made at Faquières, in the Marne, has a density of about 1,300 kilogrammes. Two parts of quicklime and one of this puzzolana, form a mortar which sets after forty hours' immersion.

Blue schists calcined, or slaty schist, of which the best deposits are found in the commune of Hainevlle, in La Manche, have yielded after having been heated to whiteness excellent puzzolana.

The employment of the ochreous earths was pointed out by Chaptal in 1797; it may be burnt either with wood or coal, and the two products are not injured in any way by being mixed.

The puzzolanas made from the various clays contain, according to Vicat, from 30 to 66 per cent. of silica, 19 to 32 per cent. of alumina; some contain 1 to 13 per cent. of lime, 4 to 14 per cent. of iron, and some as much as 14 to 30 per cent. of inert matters.

Artificial puzzolana has been made from time immemorial from broken bricks and tiles, but with very variable and generally poor results. It could not be otherwise, for the production of good puzzolana depends upon the fact of the material being burnt only to a certain extent.

Coal cinders, peat, and wood ashes, especially the last, make puzzolana of good quality; they must be sifted with care to rid them of foreign substances, and they should be stored in a dry place and only moved in fine weather.

Forge scoria pulverised and finely sifted has high qualities for producing puzzolana.

The residue from the fabrication of nitric acid with clay and azotate of potash forms the most valuable and energetic puzzolana. The mortar in which it enters acquires a hardness superior to that of the hardest lias. The cost of the material, however, which is only used in the south of France, prevents its being much employed.

The above is a pretty complete list of the

various kinds of puzzolana in use at the present day in public and private works, and in places where materials are dear they are of great service. The complete knowledge of their various qualities can only be obtained by actual experience; generally, however, it may be affirmed that the puzzolanas which are affected by acids are the most effective; but their employment in marine hydraulic works must be avoided, as salt water will completely disintegrate them.

The artificial, like the volcanic, puzzolanas, are the produce of the effect of fire in bodies essentially composed of silica and alumina.

The materials generally employed, then, are clays, the mud of seaports, docks, &c., the sands called arènes, already mentioned, argillaceous schists, ferruginous clay, ochreous earth, broken bricks and tiles, wood ashes, cinders, scoria, the residue of nitric acid, and certain amphibolic rocks in a state of decomposition. The burning is effected in the same way as that of bricks and lime, the material being sometimes formed with lumps, and sometimes burnt in a state of powder, or irregular fragments. In the last case, they are treated in reverberatory furnaces. This plan, which was employed by M. Pesot, saves the cost and labour of pulverisation after burning, which is always greater than when effected previously.

M. Vicat strongly recommends a system which consists in drying the clays in the sun, or by means of hot air, and then reducing them to powder in a mill, on the same principle as those used for coffee and spices, or with stones, and then exposing the powder to sufficient heat to drive off all the moisture which it contains. He employed for this purpose a series of hollow cylinders in cast iron, placed near to each other, in which the powder is introduced, the cylinders being so arranged as to pass successively through a conduit, formed of non-conducting materials, which receives a current of air heated to 600° or 700° centigrade. A slight inclination is given to this conduit, so that the slightest effort is sufficient to cause the cylinders to move through it by merely removing that one at the lower end and placing a fresh one at the other. The powdered clay only partially fills the cylinder, so that it rolls over itself as the latter proceeds, and all the particles come in contact with the hot air. By this means the puzzolana obtained possesses all the qualities of which it is capable. It must be noted, however, that each kind of clay demands a different degree of heat, which can only be settled by practice.

Clay is transformed into puzzolana when it has lost the water it contained, and also the faculty of making a paste with water. M. Vicat designates "normal burning" that which has been conducted under the following conditions:—1. The previous reduction of the substance to be burnt to fine powder; 2. The action of fire limited to 600° or 700° centigrade, and maintained till the aluminous hydrosilicate becomes anhydric; 3. The admission of air during the whole operation. "Super-normal burning" he describes as that which, without being carried above 750° centigrade, has been sufficiently prolonged to decompose the carbonate of lime contained in the clay.

The same author, from a large number of experiments and observations, derives the following conclusions:—

1. The rank which a substance holds as a material for puzzolana depends almost precisely on the proportion of argillaceous matter which it contains.

2. Other conditions being equal, that clay is the best which contains the largest proportion of silica, without, however, passing a certain limit, so as not to exclude all the aluminium.

3. Of various puzzolanas of equal proportions and principles, that which has the greatest specific gravity is to be preferred.

4. "Normal burning" develops most fully the qualities of all puzzolanas made from materials free of carbonate of lime, or not containing more that 12 to 15 per cent. of it.

5. In all other cases the "supernormal burning" is more effective.

The methods of burning as well as the qualities of the puzzolana vary *ad infinitum*. General Trussard, who has given great attention to this subject, prefers clays which contain about equal quantities of silica and alumina, and only 0·4 or 0·5 per cent. of carbonate of lime. Pottery clays are often of this character. The General recommends them to be treated in the same manner as bricks, to make them up into lumps, larger or smaller in proportion to the lime they contain, and afterwards to reduce them to very fine powder by means of silk bolters, as the finer the powder the greater is the effect of the puzzolana.

M. Saint-Léger in his works at Meudon, mixes with the clay a quarter of its volume of quicklime in the form of paste, and he obtains artificial puzzolana far more energetic than the best natural puzzolanas, and which remains unaltered for an indefinite time, an advantage which the hydraulic limes do not possess.

Following the indications above given, excellent puzzolana may be made anywhere, when the composition of the material at hand has been ascertained. M. Berthier furnishes the following ready method of analysing clays:—"When the clay contains lime, the latter is always in the form of carbonate; its presence may therefore be easily ascertained by pouring a few drops of any acid or vinegar on to a piece of the clay, or into a thin solution of the clay in water, when effervescence will take place in proportion to the amount of the lime present. The analysis of calcareous clays is the same as for argillaceous limestone."

NEW BUILDINGS NEAR LUDGATE CIRCUS.

THE process of rebuilding has been going on with activity for some little time past in Ludgate-circus and along New Bridge-street, southwards, and along St. Bride-street northwards. The most prominent recent addition to the architecture of the vicinity, by position and importance, is the new "City United Club," occupying the south-east face of the Circus, and extending some way down the east side of New Bridge-street. This building has a generally "handsome" effect, with its costly stone front, and pavilion roofs; but much more cannot be said for it. The style may be described as Italian, with rather a large and not very refined treatment of detail: the keystones of the circular window-heads are abnormally prominent,—a fashion of the day in Classic design. The composition is crowned, over the main cornice, by circular-headed dormers, with Classic vases rather unfortunately squeezed in between them. The carving is up to the mark in execution, and in design is equal to, and very like, much other work of the kind that is done at present. A novelty in detail is the omission of the "tenia" under the main cornice, the balance of horizontal lines being preserved by two slight breaks forming fascias, architrave-wise: this makes an agreeable variation from the stereotpyed form of cornice.

"New Bridge-street Chambers," lower down on the same side, is a curious medley of bits of Greek, Italian, and modern detail, very heavily treated. The large block of building called "Bridge Chambers," adjoining the Blackfriars Metropolitan Railway Station, and showing a frontage on the curve rounding into the adjoining street, is a work of more importance. It is in the Gothic, or at least in a Gothic style, for the treatment of the ground-floor piers, and of the wall shafts running from them to the top of the building, belongs to a phase of Gothic feeling in architecture quite distinct from that of much of the other detail. The first-floor windows, segmental-arched openings, recessed under pointed arches, and with carved ornament in the heads, are well treated, and the series of square panels variously carved, marking the first and third floor horizontal courses, have a very good, firm effect, while enlivening the whole considerably. The bands of carved foliage between and above these panelled string-courses are too coarse and large in scale for their position, and that in the main cornice especially requires a heavier line over it, to keep it in its place, instead of the mere fillet which forms the finish. In the shafts brought down from the parapet wall, between the dormers, to the ground, the architect has just missed a new combination of the *utile* with the *dulce*, in not making these down-spouts, treated architecturally: they look half like it now, and half like the vaulting shafts of a cathedral got astray; but they are just where rain-spouts should be, and where they might have been made to look like a natural feature in the design.

The very praiseworthy building of the "Economic Life Assurance Society," with the elaborate and effective terra-cotta decoration, was noticed with approval in these columns, just as it was completed a year ago, and was afterwards illustrated. With some faults it is in interest and effect very far beyond any new building in its immediate neighbourhood. The other new offices and chambers adjoining it, on the west side of New Bridge-street, call for no remark; they are neat and uninteresting to a degree. In the back street, reached by the turning opposite the London, Chatham, and Dover Railway Station, a brick warehouse, built for Messrs. Collins, shows a sensible plain architectural treatment, with large pilasters running through all the stories and arched under the cornice; the ground story is marked off by carved stone strings, below which the piers are more massive in proportion; an inversion of the delightful arrangement common in most of our street fronts, where the tenants of the ground-floor shops think every foot of plate-glass a matter of life or death, and where accordingly, the ground story is generally the lightest of all. No City architecture worth speaking of is possible until this curse of the "shop-front" is got rid of. The warehouse of Messrs. Spicer, next to the last-named, is a much more ambitious structure, with Italian pedimented and consoled windows, and therefore not looking like a warehouse at all; moreover, it is built of the palest buff brick with stone of nearly the same tint; hardly a fortunate combination. The London Mission-house, ranging with these two warehouses, is certainly as un-mission like, as formal and repelling in aspect, as a building could well be. No artistic outcasts will be attracted to it by its outside, at all events.

On Ludgate-hill there is a large block in an advanced state, but still be-scaffolded out of sight. Messrs. Treloar's premises are meant to be architecturally effective, but the details are somewhat incongruous. The carved capitals on the ground-story are too spongy-looking in outline and texture; they seem to have no sustaining power. The premises next below these, belonging to Messrs. Lynes & Son, and close over the hated viaduct, exhibit some refinement of treatment and a pleasing general effect, in a modified Italian manner; the use of a flat-topped arch to the window openings gives an individuality of manner, rather perhaps at the expense of pure constructive principles.

"Ludgate Circus Buildings," in Farringdon-street, cannot be reckoned among the architectural ornaments of the neighbourhood. Diverging to St. Bride-street, we notice Messrs. Thurgood & Durham's warehouse, of which Mr. Bridgman is the architect,—an effective treatment of brick-work, with red impressed ornamental voussoirs to the arches, and a brick corbelled cornice, simple and not ineffective. There is a novelty in detail also in the bosses upon which the window labels are stopped. The building generally is architecturally an honest one, unpretentious, and suitable for its purpose. At the corner of St. Bride-street and Poppin's-court is a slice of brick warehouses, with wall diaper in impressed red brick, also an agreeable bit of plain building, only a little too notchy in the stonework. The premises of Messrs. Gordon & Gotch, next in the list, make a very presentable brick and stone building, the entrance face on the angle, with ornamental voussoirs "as before," and granite shafts to the windows. The front is unfortunately spoilt by sign-boards. The warehouse (Mr. T. Chamberlain, architect) next to this is in a much plainer fashion, also good, with pilasters and arches somewhat like the warehouse of Messrs. Collins above mentioned, and with panels of notch-end bricks to diversify the wall surface. It is agreeable to see a general recognition that even a warehouse may be made susceptible of architectural interest, and a variety of experiments, at least, being made with this object. The premises of Messrs. Macintosh & Co., again, show some pleasing treatment, this time in red brick (except the ground story), built in pilaster between the windows, and the whole crowned by an overhanging terra-cotta cornice forming a large *cavetto*, and decorated with foliage and bosses in relief, a little toy-box looking, but still not unpleasing; and the tone of the red brick and terra-cotta is decidedly agreeable. Passing over an absolutely unarchitectural erection, we come to the lion of the street, the new offices of the *Standard* newspaper. A showy and expensive building this certainly is, but we cannot get much pleasure out of it. The two large doorways, with their deep jambs, masses of square lintel over, and large consoles, are the best part of the design. The arms of the United Kingdom are sculptured on shields supported by wreaths in the fanlight of each doorway. The detail is strictly Italian, and so far attains more unity of style than most

of the buildings in the neighbourhood; but the only novelties in the design are somewhat questionable ones; the arched archivolt of the centre ground-floor window, within a square architrave, with the spandrels glazed, looks like an inspiration from the cabinet-maker's shop; and the sham balcony balustrade beneath the first floor windows, where there is no balcony and no room for one, is absurd. The sitting statue of Britannia at the top, grasping the flag-staff, is modelled with some power and spirit; it may be a question whether the figure should not be looking *up* to the standard which she supports, rather than looking down as if to spy who went in and out of the office, though no doubt some interesting conclusions might be drawn in that manner. The name "Standard" is painted across the building in huge gilt capitals, on the bare masonry, in a very *al fresco* manner. If the name was to be made so prominent a feature, the architect should have made it form a part of his design, instead of leaving it to be merely painted on in this accidental kind of manner. We should have been glad to see a great journalistic establishment indulging a little more in the artistic, and less in the mere show side of architecture, in the exterior aspect of its new home.

The premises of Messrs. Hyde & Co., next door to the *Standard* office, show a good deal of merit and refinement in the treatment of ornamental detail, in the flat slightly-recessed carving in the architraves and the semicircular panels over them; this is a building quite removed from vulgarity, but better in detail than in total effect: the design is not quite coherent enough. The rest of the new buildings in the row are specimens of brick architecture presenting nothing for comment; that belonging to Messrs. Cassell, Petter, & Galpin is better than the others, and is solidly treated. We have omitted special mention of Messrs. Collinson & Lock's premises near the bottom of St. Bride-street, because they have been noticed in our columns before. The building is open to the charge of being too "archæological" in some respects, but it has the merit of unity of style and detail, and a broad and powerful treatment *en masse*, besides a rich and agreeable tone in the materials selected. On the score of picturesqueness, it stands *facile princeps* amidst its neighbours.

TEMPLE BAR.

THE treatment of Temple Bar was the subject of discussion at the meeting of the Court of Common Council at Guildhall last week; and the days of the Bar are evidently numbered. There were proposals, however, for dealing with the structure otherwise than by annihilation. Mr. G. Thomson proposed the removal of Temple Bar to Temple Gardens. Mr. Ernest Turner, architect, suggested a design for improving it; raising the present structure and building an arch underneath. A third letter was read suggesting the removal of the structure to Guildhall-yard. None of these propositions being apparently entertained at all, Mr. Deputy Lowman Taylor moved that it be referred to the City Lands Committee to report forthwith to the Court on the state and condition of Temple Bar, and on the propriety or expediency of "continuing" the present erection, or substituting some other structure serving the purpose of a bar at the same spot, special regard being had to public convenience, &c.

The inquiry into the "state and condition" ought to be a short one, considering the structure itself has answered it by anticipation; and as to "continuing," that is not a sentence likely to be passed upon it.* The intended setting back of the line of street for the new Law Courts settles that point; for it would then look absurdly lop-sided, and the architect's improvement scheme would scarcely be any help in regard to that question. The consideration as to sweeping it away entirely is complicated, however, by the fact that the Corporation of London have some ancient rights "at that spot" which they do not wish to lose the maintenance of; and hence the consideration as to what is to be done if the present Bar is removed. We agree with Mr. Deputy Taylor that ancient rights of that kind, being things historically interesting, are as well kept in mind; and some way of marking the site of old Temple Bar in a manner in keeping with the nature of the said rights, that is to say, in some way recalling or suggesting the idea of a gate or bar, would be appropriate. Some of the Law Courts designs showed indications of a treatment of this kind, in an arch thrown across at that point, and we should think this might be very well done, and the characteristic associations of the site thus preserved (or some of them: there are associations in connexion with it that are not agreeable enough to deserve preservation); but we should suggest, without actual gates. They could never, under any circumstances, be practically wanted, and would be sure to be more or less in the way of traffic. The desirability of throwing back the north line of Fleet-street, in a line with the Law Courts, as far as Chancery-lane, must be obvious, and will, we hope, be carried out. Every opportunity should be taken of widening any part of those crowded City thoroughfares; even if it be supposed impossible ever to carry the new line throughout, it at least gives space, and relieves the traffic for a part of the distance; and people never know what they may be losing by throwing away any chance of even partial improvement in the readjustment of thoroughfares in crowded districts.

At the meeting of the City Commission of Sewers at Guildhall, on Tuesday last, it was unanimously resolved to refer Mr. Taylor's motion for widening Fleet-street to the Finance and Improvement Committee for serious consideration. There was talk also of a "grand widening of the Strand and Fleet-street on the southern side facing the Law Courts, and extending from Essex-street on the west to the Inner Temple entrance on the east."

As to the structure, is it not the association of the site, as the old landmark between London and Westminster, that is the most important, rather than the actual stones of the old gateway? We should really question its being worth while to deliberately set it up anywhere else, as it is evident that it must go from its present position. It is a poorly-designed and poorly-constructed thing, and has no architectural value, and we can hardly imagine any situation in which it could possess any dignity or interest apart from its present site and associations.

* See "Measure for Measure":—"Thou art to continue, thou knave, thou! Thou art to continue!"

ON SOME NUISANCES AND ABSURDITIES IN LONDON.

LONDON is the most remarkable and enlightened capital in the world. Its inhabitants confess it themselves. To the educated Londoner it is the centre of intellectual interests, "the meeting place of souls." To the average Londoner it is the place where everything is better and bigger than anywhere else, and better managed, and where he thanks Heaven he was born. With the faith of the former we do not on this occasion meddle, and perhaps should in no case be disposed to controvert it. But the faith of the Cockney optimist might be liable to be rudely shaken if he had the means, or took the trouble, to investigate its basis, by comparison with the manners and customs of some benighted country towns. In some small matters at least, which go to make the comfort of civilised life in cities, he would find his central paradise rather deficient; and that proceedings are tolerated therein that would be voted antiquated and absurd in some less civilised regions.

An instance of this is the prevalence in many parts of London of "street cries," and those of the most uncouth, barbarous, and apparently unmeaning description. We have met with nothing of the sort, to anything like this extent, in other large towns. We once noticed, when passing two or three days at a very old-fashioned small country town in Suffolk, a prevalence of out-door exclamations which rather recalled this charming feature of the metropolis, save that they were much less uncouth and more intelligible. But we never encountered it in the large provincial towns of England. Macaulay (we think) gives a graphic description of what must have been the effect on the ear in days when Cheapside was a series of unglazed shops, where (in place of the modern display of goods in the window) apprentices stood at the doors, each bent on shouting out the nature and excellence of his master's wares loud enough to overpower his neighbours. But we are not so very far advanced in civilisation when we allow people to make uncouth and indescribable bellowings, like so many Yahoos, up and down respectable streets, under pretence of advertising something they want to sell.

Again: the barrel-organ nuisance is becoming something quite intolerable. This does exist in other towns, of course, but nowhere, so far as we know, to the same extent and with the same virulence as in London. It is one of the first disagreeables which strikes new residents. Scarcely any neighbourhood is safe from these pests, and some quarters, specially favoured, are almost driven to desperation by them. It is not uncommon for the listener to have the benefit of hearing two at once, equidistant from him, combining in sweet discord. There are larger and more refined instruments of torture also, on an extended scale, which do still greater execution, and carry further. Neither time nor place is sacred from them; they are known to strike up at any hour up to midnight. We should be inclined seriously to think that in the case of studious and hard-working people, illness might often be traced to the irritation of the brain produced by this pestilent interruption to their studies. Have our medical journals anything to say to that? A state of things which permits a crowd of good-for-nothing vagabonds to live in idleness, and constitute themselves a continued annoyance to forty-nine persons out of fifty, because the fiftieth is blockhead enough to pay them for it,* is a disgrace to the government of the metropolis.

The late Judge Talfourd, in his little book called "Vacation Rambles" (one of the pleasantest records of the holidays of a cultivated man that we know of), expressed a hope, in reference to a well-known and little-observed railway company's maxim, that "no gratuities" might be the rule all over the world before long, and that every one would combine to make it so. How far it is so in London most of our readers know. The hotels have at last pretended to set their faces against the system. But in most of the theatres it is still rampant. In one very well-known theatre in the Strand arrangements are made for practising three separate extortions during the evening, accompanied (if the slightest demur is made) by impertinence. The waiting at public restaurants, dining-rooms, and railway buffets, offers a still more extensive field. One great system of "what you please, sir," prevails throughout all these places in London. It may be said that here and at the theatres the sums "extorted" are but small. That is not the question; though we surmise that the annual aggregate of which the public is robbed in London by these methods would much exceed what is obtained in the course of the year by burglary. It is the principle that is wrong and unbusiness-like. Even people who are not the least disposed to count shillings, wish to know what they have to pay, and not to find one amount mentioned and another expected. But the social results of it are bad also. A class of persons who are, to a large extent, subsisting on "What you please, Sir," are sure to become either very cringing or very impudent, but generally the latter. This is undoubtedly the reason why attendance at this class of places in London is worse, and the manners of the attendants more devoid of civility than in other large towns, where the proper, businesslike method is adopted of charging attendance at a fixed rate with other things. The system prevalent in London is not found anywhere else to the same extent; it is upheld in the interests of those who practise it, because they rightly reckon that nine persons out of ten will give more, if asked for it, as a gratuity, than they would pay as a regular charge, through dread of being considered "shabby." This desire not to be thought shabby supports a host of abuses; for of course we only mention the theatre and restaurant as salient examples; the "what you please" system has endless ramifications, and meets you at almost every turn. It rests with the public to put it down, and the sooner they begin the better.

Another venerated and venerable metropolitan absurdity is the London omnibus. In "less civilised parts" improvements are made in public conveyances; in London, they remain where they were. The London omnibus is short, rickety, and jolting. It moves very slowly, and stops at every street-corner, and on every possible pretext. If you get inside you are cramped, dislocated, and either smothered or killed by a draught. If you prefer being cramped and dislocated without being smothered, you find the steps for access to the top arranged in every instance so as to afford the greatest possible

* It must be remembered also that a great deal of what these rascals make is in the way of "hush-money," paid in self-defence, as the sole means of getting rid of them. They may be ordered on; but they go next door.

difficulty in mounting, and the greatest number of chances for shin-scraping. Omnibuses in other parts of the world are not built like this; but it never seems to occur to any one that improvement can be needed. The four-wheeled cabs in London are even worse, in proportion, than the omnibuses, and the contrast between these and the comfortable carriage-like conveyances put at the disposal of the public in many of the despised "provincial" towns, at about the same fares, is rather striking. Hansom cabs are a little improving; and we must say that, on the whole, in spite of the strictures of some of the daily papers, we think the manners of the London cabmen have evinced an improvement of late years. This, however, does not apply to the omnibus drivers, who mostly show a noble independence of manner worthy of a free people.

Those who have had experience of river traffic elsewhere will not be likely, either, to be impressed by the Thames steamboat service. To come from the Mersey to the Thames, for example, is, in this respect, like going back thirty years or so. The Thames traffic, it is true, demands small and fast boats rather than large ones; but the discomfort and cram in the present boats, the utter want of shelter in bad weather, and the general meanness of the fittings and accommodation is not creditable to the enterprise or spirit of progress of the Thames boat companies. One antiquated "dodge" practised on them is amusing enough—the retention of the "inevitable boy," whose sharp barking voice transmits the captain's orders to the engine-driver in a fashion seen nowhere else. The simple expedient of a signal-handle and dial-plate, in use long ago in other parts, or even the still simpler one of a speaking-tube, one must suppose has never occurred to the mind of a Thames-boat engineer.

In the matter of the nomenclature and numbering of streets London is still defective and confusing. The proportion of street-ends without any name up at all in them is considerable, and in many other cases the name has become nearly illegible, and seems never to be renewed. Things appear to be perversely done wrong in this respect. The "Gower-street Station" of the Underground Railway, for instance (a very important one, as it is nearest to the Euston terminus), is not in Gower-street at all, nor is the name of Gower-street to be found near it: the street is near, but with no name up; and how are strangers to find it? The system of numbering is incomprehensible. You may find 14 and 19 next to each other, and 105 opposite, while 106 is round the corner at the other end of the street. The system of carrying names and numbers round corners is most puzzling to people who are used to a rational method. In most streets a good many numbers are missing, while others are split up in halves or A's and B's, as Mr. Albery notices in the "Two Roses," where somebody's address is wanted; "No. 2½, isn't it?" "No: 2¼." We noticed the other day a street where the name had just been changed (and carried round a corner, another street being tacked on to it), and every number altered and repainted; yet even the new arrangement was not consecutive, and duplicate numbers were left nearly opposite to one another!

But the great, the crowning absurdity which is peculiar to London is the system by which the inhabitants of one of the greatest and most important cities in the world are every week shut out for twenty-four hours from all means of epistolary communication, either in giving or receiving intelligence. Under what particular inspiration of Sabbatarian wisdom in high places this decree went forth, it is needless to recall; it certainly stands alone in its operation. The Londoner on Sunday is cut off from all intelligence of what may be happening elsewhere, from all interchange of letters with friends and relations, just on the day when most men have more leisure than usual to read and write such letters; he may be wanted immediately on some important juncture, his friend or relative may be dead or dying, but he cannot be got at. And this monstrous arrangement—for it is so, in relation to the state of modern society—is the distinguishing feature of the postal arrangements of the capital city of the kingdom! One would not be surprised at it in a remote country village. Of course, it is highly desirable that there should be a break in the arduous labours of the post-office officials; but this might be provided for without difficulty.

The defence we have heard set up for the present system, that people are very glad to be relieved from the reception of business letters on Sunday, is futile. Most people who have many business letters do not receive them at their residences, and need not read them on Sunday if they do. We hope that on an early occasion some member of our legislature will have sense and spirit enough to endeavour to get an end put to this weekly check on intercommunication, so annoying, unnecessary, and entirely at variance with modern habits. That it should be so tamely acquiesced in would be matter of wonder but for that optimism of the average Londoner * to which we have already referred, and which leads him to regard all arrangements which have received the sanction of custom in London as *ipso facto* right, wise, and as unalterable as the laws of the Medes and Persians. This shows a beautiful spirit of resignation and contentment; but whether it is very consistent with social progress and improvement is another question.

BERKSHIRE ARCHÆOLOGICAL AND ARCHITECTURAL SOCIETY.

THE members of this Society have had a pleasant and successful excursion. Uffington and the White Horse, with one or two of the most ancient churches in the district, were visited, and interesting papers read. The Vale of the White Horse is rich in archæological and historical lore.

The party left Reading by the 9.20 a.m. train Great Western Railway, arriving at Challow shortly after eleven o'clock. Childrey Church was then visited, and subsequently Sparsholt Church, the Blowing Stone, the White Horse Hills, Uffington Church, and Baulking Church. Vehicles were in waiting at the Challow Station, and the weather being fine, the excursions were pleasant and enjoyable.

On arriving at the quaint old church of Childrey, the party was addressed by the Rev. George Purdue, vicar of Challow, who at the request of the newly-appointed Rector of Childrey, explained the principal objects of interest in the edifice.

The next place visited was Sparsholt Church, where the party was received by the Vicar who read a paper on Sparsholt.

Immediately on leaving the church the party proceeded to the vicarage, where luncheon was provided.

The party then re-entered the carriages, and proceeded to the White Horse Hills, passing on their way the park and mansion of Mr. E. Atkins, of Kingston Lisle. Before ascending the Downs the party alighted at the famous Blowing Stone, which is one of the chief natural curiosities of the county, and lies under an elm tree opposite a public-house known as "The Blowing Stone." The stone is about 3 ft. high, 3 ft. 6 in. broad, and 2 ft. thick. It is pierced with several holes, and the sound produced by blowing into one on the top is similar to the sound of a large horn or pipe of an organ. There is a tradition that the stone was formerly used to give alarm on the approach of an enemy, and that it was thus used by Alfred the Great. One or two gentlemen attempted to produce the sound but failed, but a man who happened to be on the spot, and who was evidently *au fait* at the work, blew a prolonged blast, much to the satisfaction of the visitors.

The White Horse-hill was next visited, the party walking from the Blowing Stone to the top of the hill, upon which is cut the colossal representation of the White Horse. The figure, which has often been described, consists of a trench cut in the sides of a steep green hill, and must be seen at a distance before any shape of a horse can be discerned. It has been generally believed that this curious figure was cut to commemorate the victory of King Ethelred, and his brother Alfred (afterwards Alfred the Great) over the Danes, at Ashdown, in the year 871. Very near to the White Horse is an ancient encampment, consisting of a plain, surrounded by a rampart and ditch. This enclosure is called Uffington Castle, and is 893 ft. above the level of the sea. The scouring of the White Horse, which took place in September, 1857, and has been commemorated in a work published by Mr. Tom Hughes, is a ceremony which takes place periodically, and consists of cleansing and scouring out the trench, so as to renew and preserve the figure of the horse. The company, seated on the grassy slopes, listened with attention to a paper which was read by the Rev. C. H. Tomlinson, on the subject of the "White Horse."

Although Baulking Church was not down in the programme of the day, time permitted the members a short visit to this quaint and interesting edifice.

After viewing the church, the party proceeded to the Uffington station, G.W.R., where general expressions of satisfaction were made with reference to the day's excursion, and the hon. sec., Mr. Clapton C. Rolfe, of Reading, was complimented on the manner in which he had carried out the whole of the arrangements.

THE VALUE OF PROPERTY IN GLASGOW.

THE Court for the hearing of appeals against the valuations made by the Assessor for the burgh, was held last week; and from what then transpired something may be gleaned as to the value of property in the city. The increase in the total value of property this year amounts to about 200,000l., the annual value last year exclusive of railways and canals, being 2,366,200l. In the fashionable district of the west end there were in all 364 cases of assessment, 154 of these being appealed against. Considerable discussion took place as to the rate at which houses in this extensive and wealthy locality should be assessed, and the Court eventually retired to consider the matter. Subsequently, Mr. Marwick, Town Clerk, read the decision, which was to the following effect:—That dwelling-houses in the localities from which the appeals had come should be valued at the rate of 6d. instead of 5d. per square foot up to 7,000, and at 5d. instead of 4d. per square foot on the excess of floorage above 7,000, except the following streets, which should be charged at ½d. per square foot less: Royal-crescent, Sandyford-place, lower end of Lynedoch-street, and Fitzroy-place. On this basis the whole of the assessments were subsequently laid.

THE TOWER, A NATIONAL MUSEUM.

MR. HEPWORTH DIXON took the chair at a meeting on Monday night, called in aid of the movement for opening the Tower of London to the public one day a week, and made a very eloquent and effective speech in that direction. Why, he said, is this building so interesting to us? Because it is the scene, so to speak—the battle-ground—on which the greatest historical events of our country have been transacted. Every stone in that edifice has a story of its own. In the time of the tyrant King John there was a lovely girl, Maude the Fair, the daughter of Fitzwalter, one of our great Barons. The tyrant fell in love with her; proffered her dishonourable love. She resisted his suit; whereupon he seized her by force, carried her to the Tower, and when she still resisted him he placed her in that round turret on the top of the white gate, where he kept her, believing he could starve her into submission; but the noble girl fought and resisted his wicked efforts. And this deed resulted in the birth of the liberty of the subject; for the father of the girl took up arms against the king, which ended in his signing the great charter of our liberties. It is because the Tower of London has about it so much that is ennobling and simple, as well as so much that is dark, tragic, and terrible, that I agree with those who have got up this movement that these great records should be unsealed. In France I find that every monument is freely open to the public at least three days a-week, and even in Russia likewise. It is the same everywhere but in England. We have all been, I think, too negligent. We have rights, but we have not asserted them. I am certain this meeting will delight every statesman who honestly and sincerely looks for the advancement of the country. Let us go to Mr. Disraeli, and say we are all fellow-students of history. To shut the Tower up is equal to taxing the knowledge of the public. There is no statesman with a heart and a brain of an English gentleman, but will say, "If I can turn the people into the Tower to revel in the historical glories of England, I shall have done a good thing

* It must be remembered also that the system does not only affect the Londoner. One consequence of it is, that letters to be delivered in the country on Monday do not reach their destination, when at any distance, till the afternoon. We have heard most serious complaints of the consequent inconvenience to men of business in the provinces.

in my day, and one for which I shall be held in honourable remembrance."

Several other speakers followed, and a memorial was submitted to the meeting, which it was proposed should be addressed to Mr. Disraeli, asking the sanction of the Government to the proposals of the meeting.

We agree with the meeting as to opening the Tower, say one day in the week, to the people, admitting at the same time that good arrangement will be needed; but we would go further. We want, as we have often said, to find the Armoury properly cared for, and a man with special knowledge appointed for that purpose; and we urge, as we have done before, that the money taken for viewing it should be spent in maintaining and increasing its usefulness. The conditions under which it now exists are discreditable to the country. We trust that when the memorial above alluded to is presented to the Prime Minister, something will be said on this head as well.

THE CHURCH IN CHICAGO.

THE late Bishop of Illinois, the Right Rev. H. J. Whitehouse, D.D., was the only prelate of the American House of Bishops who succeeded in calling into shadowy existence a capitular organisation. From his own private fortune he furnished the funds that were requisite for the erection of a cathedral church and the payment of four canons. The cathedral at Chicago, dedicated to SS. Peter and Paul, was not large; it was rather the nucleus of a diocesan centre than an attempt at a finished structure worthy of its designation. It might have been considerably enlarged, but for a difference between the bishop, who would not wait, and his diocesan committee, without whom no episcopal function could be legitimately exercised. After its erection, the cathedral was viewed by the authorities of the see simply as a piece of private property, forming a part of the bishop's estate; but, nevertheless, they recognised its existence as a church so far as to summon the diocesan convention to assemble annually within its walls. Funds have been subscribed or guaranteed in connexion with several other of the American sees for the building of cathedrals; but Chicago stands pretty much alone in its actual realisation of the idea. We may mention, further, that Illinois stands alone in the special and systematic care given to the subject of church building, in which it follows generally the plans and regulations framed by the London Diocesan Church-building Society.

NEW BATHS AND WASHHOUSES IN CAMBERWELL.

IN connexion with a block of new buildings which are about to be erected in Camberwell-road, close to the Walworth-road Station of the London, Chatham, and Dover Railway, new baths and washhouses, on a large and comprehensive scale, will also be constructed. The site of the intended buildings is on the west side of the Camberwell-road, adjoining Brunswick terrace, and in close proximity to Grosvenor-street and park. The site extends a considerable depth westward, and on that portion immediately fronting Camberwell-road a number of large and commodious shops and houses will be built, whilst in the rear there will be a large swimming-bath, 74 ft. by 50 ft., approached through an entrance in Camberwell-road, in the centre of the block of buildings just named. The swimming-bath will have a lofty open timber ceiling, along the centre of which will run a lantern light, serving also for ventilation purposes. The depth of the bath will be 4 ft. at one end, and 7 ft. at the other, and on each side there will be boxes—sixty in number—for the accommodation of bathers. The utilisation of the bath, in the winter season, for meetings, lectures, and musical and other entertainments, is a prominent feature in the intended arrangements, and with this view galleries will be erected. In addition to the swimming-bath there will also be a number of ladies' and gentlemen's private baths, the former being placed on the south side of the entrance to the swimming-bath. The washhouse and laundry accommodation is a prominent feature in the undertaking. The washhouses will be erected in the upper portion of the building, running parallel with the full length of the swimming-bath, on each side. We understand that the undertaking is promoted by a number of private gentlemen, who have every confidence in its success. The site may be described as in the centre of a dense population, and the close proximity of the railway will also admit of easy access to the baths from the surrounding districts. Mr. Hemming, of Chantrey-road, Brixton, is the architect who has designed the baths and buildings.

ANCIENT SKELETONS IN RAMSGATE.

IN laying out a new road on the East Cliff, at Ramsgate, on a portion of the Granville Estate, immediately adjoining the Coast Guard Station, five skeletons were discovered in a very perfect state of preservation. The skeletons were in shallow graves excavated in the chalk, and were only about 1 ft. 3 in. below the surface of the ground. The bodies had been interred very nearly due north and south, the heads being towards the north, and were all lying in the same direction. One of the skeletons had the arms bent at the elbows, with the fore-arms lying across the lower ribs. Two small urns, about 7 in. high, were discovered with this interment, one being placed at the head and the other between the knees. The pottery is apparently British of the Roman period. One of the urns was destroyed, but the other was disinterred entire, and is now in the hands of a collector in the town. Through the instrumentality of Mr. E. Ellice-Clark, the borough engineer, the skeleton last described has been removed without disturbing it from the position in which it was found, and will, it is understood, be preserved in a museum it is intended to form in Ramsgate. The rest of the bodies were re-interred where they were found.

A TOWN HALL AND MARKET FOR HEYWOOD.

A PUBLIC meeting of the ratepayers of Heywood, convened by the Local Board, has been held in the large hall of the Mechanics' Institute, for the purpose of sanctioning or rejecting a scheme to be submitted to the meeting by the Local Board for the erection of a market and public offices, on a site comprising 5,000 yards of land in Church-street, purchased at a cost of 5,000*l.* by former Boards. About 600 persons attended the meeting. Mr. William Bell (chairman of the Local Board) presided. The chairman explained that the project of the Board was to erect public offices fronting Church-street, having a frontage of 90 ft., and a market at the back. The whole of the buildings would occupy an area of 1,500 yards. The proposed cost was 10,000*l.*, which the Board asked the consent of the ratepayers to borrow from the Local Government Board at 3½ per cent. The market would be self-supporting. Mr. G. N. Hodgkinson moved a resolution that the meeting sanction the erection of a market and public offices at a cost of 10,000*l.* The motion was carried almost unanimously. Mr. John Buckley moved that in lieu of offices to let the Board be requested to provide a large assembly-room at an extra outlay of 4,000*l.* The motion was carried unanimously. Plans of offices and market, by Messrs. Maxwell & Tuke, Bury, have been approved by the Local Board.

MARGATE DRAINAGE COMPETITION.

THE eight plans submitted in competition for the drainage of Margate were referred by the Town Council to Sir Joseph Bazalgette, to advise as to the two plans for premiation. This gentleman represented, that with certain modifications the plan of "Economy" appeared to him most clearly to indicate the general outline of a scheme which ought to be adopted, and next in order of merit was that of "C. E."

Some difference of opinion existing in the council as to Sir Joseph Bazalgette's report, the council then referred the matter to the borough surveyor, to ascertain if the referee's report was correct.

The borough surveyor, in his report read at the last meeting, states that the plan of "Experientia" is in accordance with the suggestions of Sir Joseph Bazalgette, notwithstanding the assertions of this eminent authority to the contrary. The reference to the borough surveyor is somewhat anomalous after his offer to the Board at a former meeting to submit a plan on his own account, embodying the tunnel idea of "Economy" and the suggestions of Sir Joseph Bazalgette, and that he should consider such services to fall within the office held by him.

The local *Gazette*, which has all through this important competition advocated fair-play to the competitors, remarks,—

"We are sorry to be obliged to express our astonishment at the complications which are evidently, from some cause or other, gathering round this vital question. And yet nothing can be more simple, with the evidence before the Council, to act in a manner fair to the competitors, honourable to themselves, and in the best interests of the ratepayers.

Sir Joseph Bazalgette has advised the Council that he cannot recommend either of the plans to be sent to the Local Government Board without certain modifications, but that the plans of 'Economy' and 'C.E.' appear to him to come nearest to the scheme which he would recommend for the drainage of Margate, and that they deserve the offered premiums."

The duty of the Board is clear to a certain point; they should at once award the premiums in accordance with the recommendation of their referee. As to their after proceeding we would suggest, neither plan being satisfactory, that the authors of the two premiated designs should be supplied with all the additional information that has been gathered together with the suggestions of the referee, and invited to submit fresh plans, from which the one to be carried out, if approved of by the Local Government Board, should be selected.

OPENING OF THE NORFOLK COUNTY SCHOOL.

THE school which it was determined a few years ago to build, with the view of providing a higher class of education for the children of the agriculturists of Norfolk, and the foundation-stone of which was laid by H.R.H. the Prince of Wales on Easter Monday, 1873, has been opened. Its site is on the summit of the Bintry hills, at Elmham. The extensive range of buildings consists of a central block surmounted by two turrets. It has two wings running north and south; the latter is entirely devoted to the masters' and servants' rooms, with head master's house at the end of it practically detached, although communicating with it. There is a corresponding building at the extremity of the north wing, intended as a house for a second master, should the school become sufficiently strong in numbers to command one. Meanwhile this building is sufficiently detached from the main structure to be convertible into an infirmary. At present it has been used as a temporary laundry. In the centre of the whole building is a large hall, having on one side a stage and platform, and to be used as a reception-room, and on the opposite side a large room fitted with desks. On either side of the north corridor on the ground floor are several class-rooms. Around the central hall, which will be used as a general place of meeting, there are two tiers of galleries, out of which run corridors, fitted with barrack-like dormitories, the partitions of which are not carried completely up, so that there will be an uninterrupted current of air running through the dormitories. Movable baths are provided. There are no general lavatories. In fact, the dormitories are made as home-like as possible. The dining-hall and kitchen offices are on the top floor, with a lift leading to the porter's office at the entrance, and to the larders and cellars on the basement. Capt. Warren's patent is the system of cooking that has been adopted. The exterior is of flint, with red brick dressings, and with large dormers and weather tiling at intervals; the roof being of red and black banded tiles. The architects were Messrs. John Giles & Gough, of London, and the work has been executed by Mr. Robert Skipper, of East Dereham. The estimated cost, 8,000*l.*, has been exceeded but little, if any. The necessary money has been raised by shares to the amount of 10,000*l.*, the Earl of Leicester, and other noblemen, with many of the yeomanry of the county, being shareholders.

Discovery at Gilling Castle, Yorkshire. The mansion is partly modern, and attached to a very early Norman Castle, which possesses attractions for archæologists. Beneath the older part are dungeons, in one of which there was a walled-up doorway, the arch being pointed as if of the transition period. A portion of the walling has been taken away, and it has been discovered that the stones of the arch have carved shields and arms, thought to be of the original founders; and the doorway would seem to be that of the original Norman structure. We should doubt as to the asserted age of the arms.

THE MANUFACTURE OF COLOURS FOR PAINTING.

THE British public is indebted to American sources for the publication of an English translation of an important French work on this subject.*

This goodly volume of 660 pages, derived, as it is, from the last and greatly improved Paris edition of the well-known work of MM. Riffault, Vergnaud, and Toussaint, edited by M. F. Malepeyre, is believed to be by far the most thorough and complete treatise upon the important subject of which it treats ever published in the English language.

It comprises some account of those pigments now known to have been used by the ancients; the principles of colour as developed by Chevreul; thorough descriptions of the nature and properties of the raw materials used, and the processes and machinery for the manufacture of an immense variety of pigments; the combinations necessary in the compounding of those colours, hues, and tones which are the results of the mixture of colours; practical information as to dryers; and a variety of analyses and tests of pigments; and much other useful matter.

The information on the all-important subject of white lead is especially voluminous. In reference to the danger to health connected with certain manipulations or processes in its manufacture at the lead-works of the department of the Seine, the authors state that the separation of the white lead from the non-corroded metal, and the first dry pounding and sifting, are the most unwholesome parts of the manufacture. In nearly all of the works of Paris, the workman picks up by hand the large and slightly adhering scales of white lead, and separates the remainder by twisting and bending in every direction the non-corroded lead. This hand-picking is generally done in the bed itself, and sometimes in a special room, where the whole of the corroded metal is carried, in the shape it comes from the pots. This picking, however, where the hands are constantly covered with carbonate of lead, is not the most dangerous part of the operation, because the thick scales are separated without much dust. But as the metallic lead still retains a certain quantity of white lead strongly adhering, it was formally beaten with a wooden rammer, thus producing a fine dust, which was inhaled by the workman. This operation is therefore the most dangerous, and is now substituted in several works by mechanical means, which imperil the health of the men much less. The buckles or sheets with their still adherent white lead are put, one by one, upon an endless cloth, which carries them to an inclined hopper, from which they pass between two pairs of grooved rollers, and thence through an inclined cylindrical sieve. What passes through the holes of the sieve is received into a hopper, which delivers it into a trough on wheels. The metallic lead falls from the lower opening of the sieve into another trough. The whole of the machinery is inclosed in tight wooden partitions, the only free opening of which is that for the passage of the endless cloth. The trough filled with the white lead is removed when the dust has subsided, and its contents are mixed with the scales picked up by hand. The next dry grinding is, in the majority of cases, still effected under vertical stones, rolling upon a horizontal bed.

The packing of white lead is often a cause of lead colic. To prevent the production of dust, Mr. Lefèvre lets the white lead into the barrel slowly and carefully, and then compresses it by means of a screw, which pushes down a wooden block of a diameter slightly less than that of the barrel. A new addition of white lead is compressed in the same manner, and the operation is continued until the barrel is thoroughly filled. The packing of the lump white lead is effected as follows:—Rows of lumps, already wrapped in paper, are formed as close as possible; and when the barrel is half filled, it is shaken after it has been covered with several thicknesses of cloth. These are removed when the dust has subsided; but there is very little dust when the lumps are wrapped in paper. The packer has always two barrels on hand, so as not to lose time, and when one is filled, the cover is immediately put on. All the rooms in Mr. Lefèvre's works are kept perfectly clean, and the clothing of the men is of such a nature as to prevent the contact of the white lead with the skin. MM. Lefèvre & Co. have taken all possible precautions for protecting their men from lead diseases, which are always dangerous and sometimes mortal. They have improved the operations of casting the lead, taking the beds apart, separating the white lead from the spirals, grinding the white lead in water or oil, filling and emptying the drying pots, dry grinding, and sifting and packing.

Dr. Ure appears to have been among the first to ascertain the difference between white lead and the precipitated carbonates. White lead is anhydrous, amorphous, and opaque in oil; whereas Dr. Ure found out by microscopic observations that the precipitated carbonate was partly crystalline and translucent.

Various chemical compounds have been proposed as substitutes for white lead. Antimony-white is said to have at least twice the covering power of the best white lead. Antimony, however, is a poisonous metal as well as lead. Indeed, an old chemist, Basil Valentine, says that the one partakes of the nature of the other. Zinc is not so poisonous, but the covering power is not equal to lead.

Some modern colours are very changeable, and where these are brilliant and beautiful they form a perilous appliance in the hands of artists. Indeed, while some old pictures are as brilliant as ever they were, others that are not old are changing seriously. In this respect, therefore, a work such as the present may be somewhat dangerous for use by artists. Experiments on the fixedness of colours in oil painting are much wanted; and a lesson might be got from the ancients in this respect. But it seems that examinations of ancient monuments have revealed to chemists other colours than white, black, yellow, brown, red, blue, and green.

One serious defect in white lead, whether as a basic colour, if we are right in calling it so, for mixture with others, or, *per se*, is its changeability by sulphur; and as in picture galleries, where the public congregate, there is a liability to sulphurous vapours pervading the atmosphere, much harm may be thus done to pictures. But while oil does not seem to prevent the blackening of white lead, or of colours mixed with white lead, we have found white lead used with certain varnishes to withstand for several years even the sulphurous fumes from locomotives close at hand without being blackened. No doubt what is called the painter's *desideratum*, which appears to be of this nature, will be found to protect white lead in this way. The less volatility there is in the varnish of course the better. White wax would be a good subject for experiment. This, generally speaking, is the kind of experiments that artists are much in want of.

The work under notice contains some information in respect to the preparation of what is called the silicate colours. We quote as to this from an appendix on oils, varnishes, and the grounding, &c., of colours:—

"Our processes for giving more body or opacity to the colours produced by the combination of silica with alkalies, alkaline earths, and metallic oxides, and therefore making vitrified pigments, will be easily understood by the following description:—In several arts, in painting on porcelain and glass, for instance, the colours employed are formed of the materials we have indicated. In certain cases it is not absolutely necessary that the colours should be opaque, and in glass painting, on the contrary, transparency in the colours is a desideratum. The colours formed by the combination of silica with alkalies, alkaline earths, and metallic oxides, are remarkable for their resistance to the action of air and dampness; therefore, it is desirable that they should be employed in ordinary painting; but it is also absolutely necessary that they should possess sufficient body and opacity to cover well the materials upon which they are applied. It is known that several kinds of glass, especially those which contain a great proportion of lime, will have their molecular arrangement completely changed by a long exposure to a not very intense red heat. From an ordinary transparent glass they will become a semiopaque material, known under the names of *devitrified glass*, or *Réaumur's porcelain*. Basing ourselves upon this fact, we propose the following mode of operation:—We introduce into an ordinary glass pot a mixture of 250 kilogrammes of white sand, 100 kilogrammes of dry sulphate of soda, 85 kilogrammes of phosphate of lime, and 4 kilogrammes of charcoal, the latter being added for decomposing and removing the acid of the sulphate of soda. We pour the melted mixture, by means of an iron ladle, into cold water, and the suddenly cooled glass is reduced to small fragments, which are immediately heated for three or four days at from 370° to 480° C., in ordinary gas retorts. The hot fragments are then again raked into cold water. They become still more disintegrated, and are so brittle that they are easily powdered under ordinary vertical running stones. The devitrification operated in the retorts, at a low and protracted heat, still increases the opacity due to the phosphate of lime. In certain cases, when an extreme degree of opacity is desired, a suitable proportion of oxide of tin is added. The previously indicated mixture gives a white opaque glass, which may be used as a basis for all the desired colours. It is well known that metallic oxides are generally employed for colouring glass; these oxides are, therefore, combined with the above materials before their fusion in the glass pots, and in proportions to suit the desired hues or tones of colour. We shall not here examine these proportions, since our present object is to give sufficient body and opacity to vitreous compounds, in order to use them with water or oils as ordinary paints."

Although there are more or less obvious errors in the work, it is a very valuable and useful one.

* "A Practical Treatise on the Manufacture of Colours for Painting: comprising the Origin, Definition, and Classification of Colours; the Treatment of the Raw Materials; the best Formulæ and the newest Processes for the Preparation of every Description of Pigment, and the necessary Apparatus and Directions for its Use; Dryers; the Testing, Application, and Qualities of Paints, &c. &c. By MM. Riffault, Vergnaud, and Toussaint. Revised and edited by M. F. Malepeyre. Translated from the French by A. A. Fesquet, Chemist and Engineer. Illustrated by Eighty Engravings. Philadelphia: Henry Carey Baird, Industrial Publisher, 406, Walnut-street. London: Sampson Low, Marston, Low, & Searle, Crown Building, 188, Fleet-street. 1874."

THE EVENTFUL LIVES OF ARTISTS.

"HIS life like that of most artists was uneventful." This is one of the stereotyped and constantly-recurring phrases in the columns of our journals. Do the writers who use it mean to say that the painting of a fine picture or the execution of a noble statue is not an important event? If they do they woefully lack perception, for these are as important, if not more so, as most events which occur in this diminutive planet. Let these guinea-a-liners consider for awhile what extraordinary events the production of the Phidian Marbles, the Apollo, the Last Judgment, or the Madonna di San Sisto, were. Common mortals are so dazed by present powers, by wealth, and noise, that they mistake the events that come of these for the great and enduring events of time, whereas these are but very ordinary and transitory things, which repeat themselves times out of number. Dynasties rise and fall. Revolutions, like volcanoes, throw up their blinding smoke and scoriæ, and blaze themselves out. Nations have their political epidemics as individuals,—thanks to mortal folly,—have to go through or perish under measles, whooping-cough, or small-pox. But what now of the mighty Popes, the early power of the Roman Church, the subtle statecraft, or the wars of Italy? Who cares any longer about these? The world goes to Italy to witness those great events in art which took form and happened hundreds of years since, events which still astonish and excite its admiration. The dynasty of genius is alone enduring. The thrones of its princes may be temporarily usurped by force, wealth, and pageantry, but these events are only the prelude to a glorious restoration. A nation passes through its social and political revolutions only that it may culminate in philosophy, literature, and art. If it should not attain the topmost round in these, whatever may be the mischief it may have done in the time it has passed,—it is no more.

The poor short-sighted things who fret their hour upon the stage, and are called, *par excellence*, statesmen, take no note of art but as something which they may patronise. Patronise, forsooth! They are too dull to see that if they be doing any good at all, their heads only pave the way to mightier things than statecraft. They cannot understand that the art mind is the dominant mind,—the highest type of intelligence; that art is the greatest and most difficult problem humanity has to solve.

We have shown, then, that the artist's life is not only not uneventful when entirely devoted to art, though it produce nothing but fine works of painting, sculpture, or architecture; but we could also show that the lives of great artists have been eventful in other phases of life than their own speciality,—nay, that they have played their parts in general affairs. Artists have shown themselves to be philosophers, statesmen, soldiers, engineers, and so on; have shown themselves equal to stirring times, and have suggested measures which have now advanced, now saved their country. The lives of artists, then, are not uneventful, but most eventful in all that is enduring,—in that, for which, above all things, civilisation exists.

We would not, therefore, have the labelled dust of a great sculptor stowed away in the eastern corner of the crypt as the remains of an "uneventful life"; his was not only eventful by the production of the fine works of which every one within the last few weeks must have seen a list, but in those struggles which the soundest men in the country have to experience. The fact is, the world rails against the persecutors of men who worked for truth's sake of old; but they in turn become the neglectors and persecutors of the truth-seekers of to-day. The truth is not so readily recognisable as we are

apt to think. Truth has lain at the world's feet for thousands of years, and yet how little of it has been garnered. The world does not know the right thing when it sees it; the crowd looks for glitter, and, in pursuing this, runs over and tramples down the real thing. Thus it was that Foley's talent was long overlooked. He had, therefore, like other men of genius, to struggle against the ignorance and stupidity of the public, till a rift came in the clouds, and then the dear old England of extremes heaped commissions upon him, and we shall not be far from the truth if we say, crushed the life out of him, killed him with kindness. His works will be amongst the most important events of our time, amongst those events by which posterity will be able to form a favourable judgment of our state of cultivation. Reader, give a thought to the pains and penalties endured by men who care for the *status* of England.

Foley's desire to produce noble and conscientious work earned him a tomb in St. Paul's, as his steadfastness, truthfulness, and kindness obtained for him a place in the hearts of all who knew him.

STREET ARCHITECTURE.

No. 74, CORNHILL, LONDON.

WE illustrate in our present number a building lately erected at 74, Cornhill, and the entrance to Newman's-court. The proprietor, Mr. A. J. Nash, a glass and china merchant, occupies the basement, ground-floor, and mezzanine. The upper floors, each consisting of a set of three rooms, having a lavatory and w.c., are let off as offices. The staircase from the mezzanine upwards is of teak, considered by the architect preferable to stone in case of fire. The attic, occupied by the housekeeper, contains a living-room and two bed-rooms. The former opens on to an asphalte terrace, overlooking Newman's-court. The roof is covered with the Broomhall tiles. The builders were Messrs. King & Son. The architect was Mr. Thomas T. Smith, of Bloomsbury, under whose direction the work has been carried out, at a cost of 3,500*l*.

NEW BUILDINGS, CHEAPSIDE.

WITH the exception of the few years immediately following the Fire of London, there have probably been more houses built within the last ten years in the city of London, upon old and new foundations, than in any preceding hundred years. The rebuildings which immediately took place after the Fire of 1666 were necessarily carried out in haste, and from the great demand for materials, those nearest to hand (often of a very inferior description) were used, and it is not surprising, after the lapse of above 200 years, that a great part of the houses in the city of London, not previously rebuilt in the interval, now require to be so. This was the case with the two houses, Nos. 48 and 49, Cheapside, forming the subject of one of our illustrations. These houses had been erected after the Fire, and had thick party walls; the fronts towards the street, which had been originally of timber framing, had been replaced some seventy years since by brickwork; but the whole of the back-fronts, and some buildings in the rear, had been left in their original condition. The enclosures to No. 48 were constructed of timber framing, covered with weather boarding; and those of No. 49, of timber framing, covered with lath and plaster, with wooden barge-boards. Upon all the old maps of the city of London, this part of Cheapside is shown of a great width, having an open space in front and around the tower of Bow Church, which formerly stood west of the present body of the church, and at some distance back from the street. The ground in Cheapside, west of the church, had either been excavated to a very considerable depth, or the original level was very much below the present one of the street, for an average depth of nearly 30 ft. was obliged to be excavated, through made ground, before anything like undisturbed ground was reached, which, when reached, was gravel. The filling up of this hollow space consisted principally of garden mould, flints, bones, large lumps of chalk, broken building stones, among which were found some architectural remains in the Early English style of architecture, capitals and bases of columns, with pieces of worked Purbeck and Kentish rag stone, and below this the made earth was full of fragments of Roman pottery, some glass lachrymatories, with broken pieces of glass scent or ointment vases, and a few very-much corroded (so as to be undistinguishable) bronze coins. The Roman pottery was principally fine red Samian ware, with ornamental patterns, and some with figures, in low relief, of dogs pursuing foxes, but broken into small fragments. There were also parts of some coarsely-made amphoræ and tazzas of common workmanship and design.

Stow, describing an excavation made at this spot in the year 1595, says, "Thomas Tomlinson causing, in the High-street of Cheape, a vault to be digged and made, there was found at 15 ft. deep, a faire pavement, like unto that above ground, and at the further end, at the channel, was found a tree sawed into five stepps, which was to step over some brooke running out of the west, towards Wallbrooke, and upon the edge of the said brooke, as it seemeth, there were found lying along the bodies of two great trees, the ends thereof were sawn off, and firm timber, as at the first when they fell. Part of the said trees remain yet in the ground undigged. It is all formed ground, until they went past the trees aforesaid, which was about 17 ft. deep or better; thus much hath the ground of this citie (in that place) been raised from the maine." And in confirmation of his description, there is at present in front of the adjoining houses, Nos. 46 and 47, situated at the north-east corner of Bread-street, a very large and spacious ancient vault, at a considerable depth, going entirely under the roadway of Cheapside, and there is not much doubt but that this is the vault dug by Thomas Tomlinson.

Nearly immediately in front of Nos. 48 and 49 stood Cheapside Cross; one of the crosses erected in memory of Queen Eleanor. In an old print published in the early part of Charles I.'s time, showing the procession, accompanying Mary de Medici, on her visit to her daughter Henrietta, Charles's queen, this cross is shown as standing in the middle of the street, which was of a very considerable width, and, in olden times, tournaments were held on this spot. At one held in September, 1331, at which Queen Philippa was present, owing to the faulty construction of the scaffold upon which she sat, it broke down, and the queen and several of her court fell upon the spectators standing below, and she and they were much hurt; and it was only at the earnest intercession of the queen, that the persons putting up the erection were not severely punished. After this occurrence the king (Edward III.) caused a permanent stone building to be erected on the ground adjoining Bow Church for the queen and her court to view similar shows and processions, to prevent the chances of any such casualty again arising from a temporary and ill-constructed erection being used. Stow complains that, in his time, the street had begun to be much narrowed at this point, first by the erection of stalls for the sale of goods, growing into small sheds, which had been temporarily erected upon the sides of the wide roadway, and which were gradually added to, until they became permanent tall houses, some of them three, four, and five stories high, by which buildings the open space was much encroached upon, to the narrowing even of the ordinary roadway. Owing to these gradual contractions of the street, the cross erected in the centre, became, or was considered, an obstruction; and during the Protectorate it was resolved to remove it. This cross, which had been erected by Edward I. in 1290, was re-edified in 1441 by a subscription of some members of the corporation; and was repaired and gilded all over in 1484 and 1486. It was, subsequently, from time to time repaired and re-decorated; but it gradually, by each reparation, lost some of the original beautiful design which it had displayed when first erected, and degenerated into a very commonplace structure; for at its last repair in 1600, in compliment to Queen Elizabeth, an effigy of Diana was put in the place of the figure of Queen Eleanor, which had fallen into decay, and to the whole was given a semi-classical character. An arcade, supported by columns, was substituted for the canopies, and this was surmounted by a ribbed dome upon which a large cross was placed exciting the aversion of the puritan party. With these changes to the erection we can hardly regret its destruction, which took place in 1643, by command of Parliament, or join in the regrets expressed by the royalist, James Howel, in his familiar letters, for its loss.

A little to the west of this cross stood the Standard, opposite the end of Honey-lane and Bread-street, the erection of which was commenced by Sir John Well, mayor, in 1430, and completed after his death by his executors. He caused water to be brought from a spring at Tyburn, and provided a reservoir here with a pipe that was always running for the use of his fellow citizens. The Standard seems to have been the place for certain executions of an irregular character, for in the year 1326 the citizens here beheaded Walter Stapleton, Bishop of Exeter, who had rendered himself unpopular; and other executions of note also here took place. In the year 1381 Wat Tyler executed several of his prisoners at the Standard, and in 1450 Jack Cade here beheaded Lord Saye. Several persons were whipped here, branded, or had their ears cut off for certain misdemeanours. In the year 1461, John Doig had one of his hands cut off for striking a man before the Judges at Westminster, and many minor punishments were here carried into effect. It was also the place for publicly burning offensive books, unpopular charters, and ordinances. Missals of the Saints were burnt in Henry VIII.'s time; and Bibles, and the works of the Reformers in Queen Mary's.

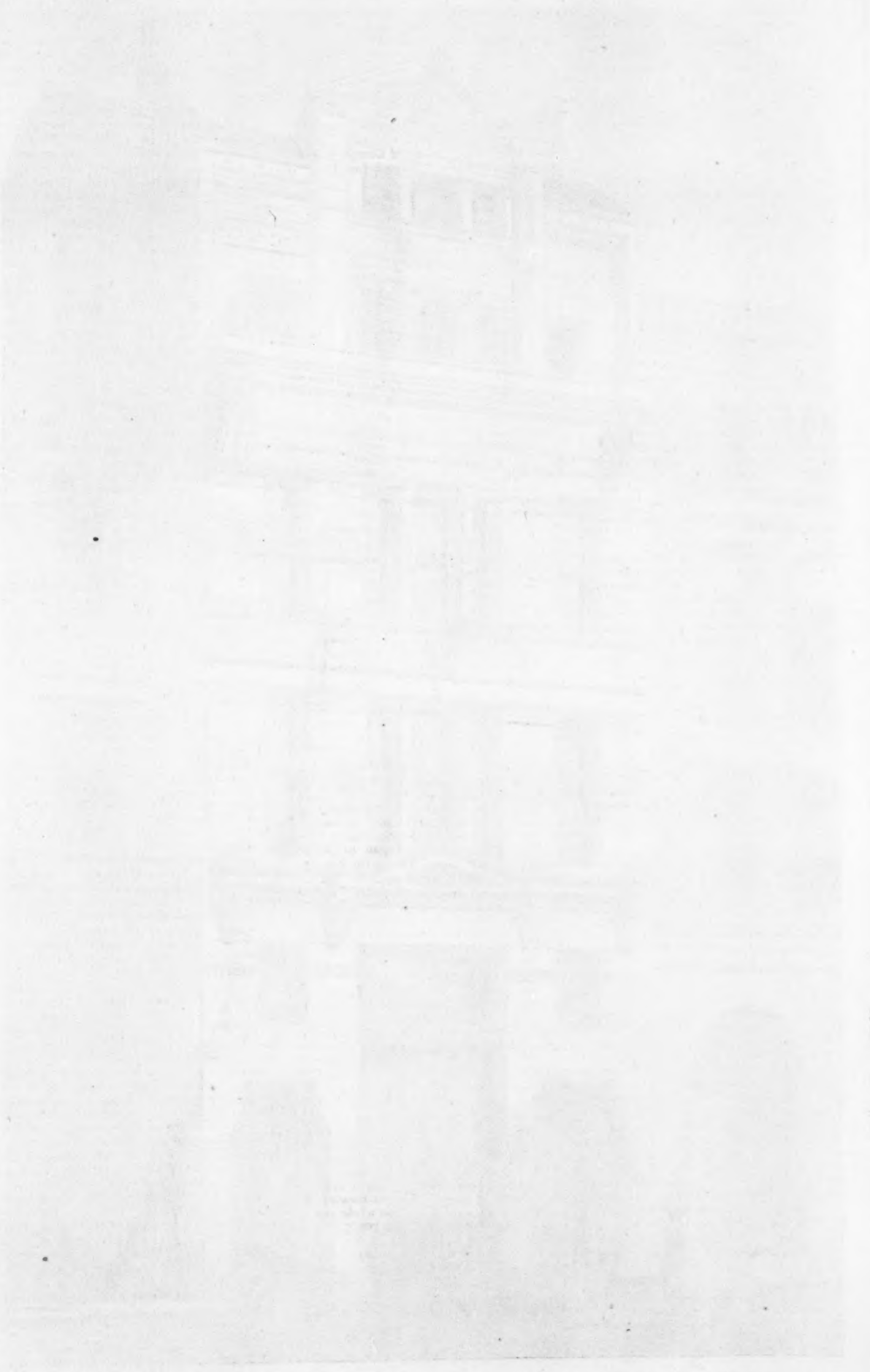
Immediately in the rear of these houses was formerly situated Spread Eagle-court, now wholly absorbed in Messrs. Copestake & Co.'s premises, and in that court immediately in the rear of No. 49, stood the residence of John Milton, senior, scrivener (in modern parlance, a solicitor), the father of Milton, the poet, who was born here on the 9th of December, 1608, and here he lived and studied until he left for Cambridge in the seventeenth year of his age. The old maps of the period show Spread Eagle-court, like many City courts, a *cul de sac*,—close, ill-ventilated, and a very confined place, opening into Bread-street, which was then, as it is now, a narrow, and probably at that time a not very salubrious outlet; for Stow remarks of Honey-lane opposite to it, that it was not so called from its sweetness, for it was particularly dirty and unsavoury; and we can fully sympathise with the enjoyment which must have been felt by the poet whenever he left Spread Eagle-court for the country. He thus expresses himself in his "Paradise Lost":—

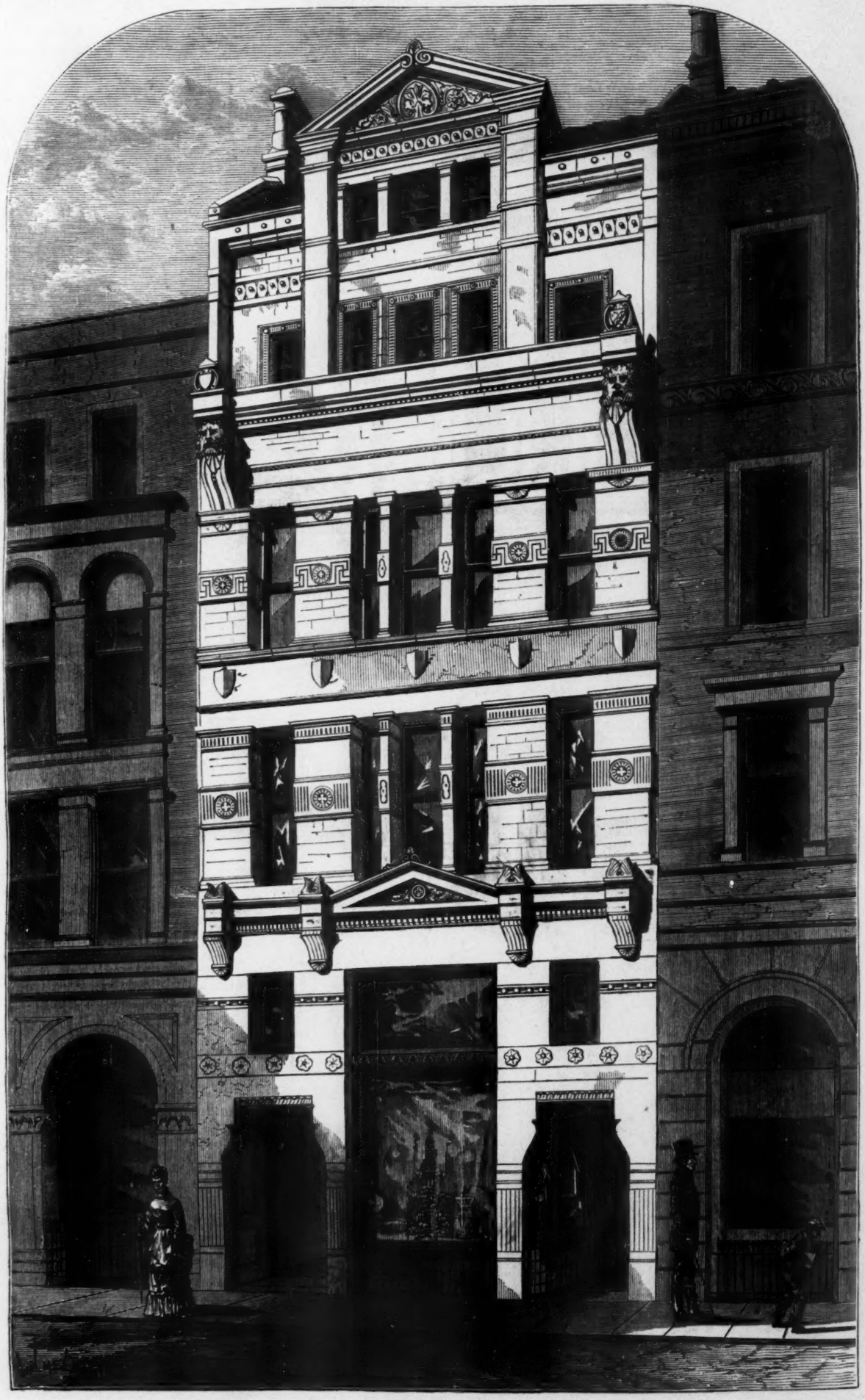
> "As one who long in populous city pent,
> Where houses thick and sewers annoy the air,
> Forth issuing, on a summer's morn, to breathe
> Among the pleasant villages and farms."

This part of Cheapside used to be known as Goldsmith-row, from the number of goldsmiths' shops which were here situated; and these houses during the Tudor period were considered among the most stately, and were occupied by some of the richest citizens in the City. No. 48, was occupied by a continuous succession of gold and silver smiths, from a very early period, down to the time that the present firm of Keith, Prowse, & Co., the music publishers, took possession of the premises in 1834 (Thomas Cox Savory being the last of about twenty preceding firms of gold and silver smiths), when the old smelting furnace was at that time at last removed and *gold* was exchanged upon these premises for *notes*.

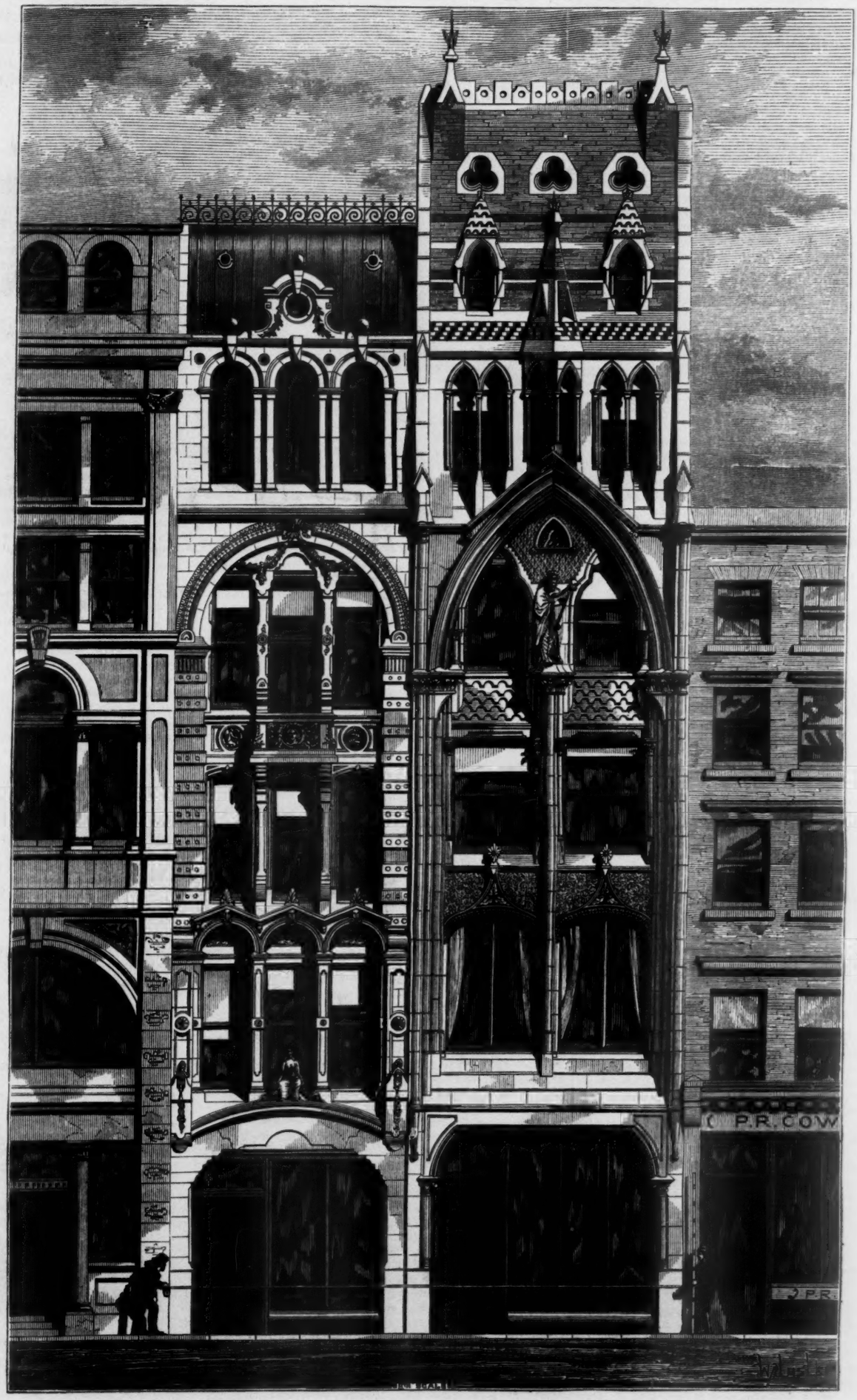
The defective condition of the old side walls of these buildings, which walls were more than their entire width out of the perpendicular, and only prevented from falling by the massive oak and chestnut beams in the floors strutting the walls, rendered it necessary to rebuild, and the constantly increasing value of space inducing a desire to utilise what was lost by bad construction and inconvenient arrangement, rendered the pulling down and rebuilding these premises a prudent and advantageous investment of capital. In the first instance Mr. R. L. Roumieu, who is the architect to the two new buildings, prepared designs of a Mediæval character for both of the houses, varying, however, in design, but still in unison so as to form one composition. That prepared for No. 48 has been carried out with very little variation, but Messrs. Lake & Turner preferring the Renaissance style, Mr. Roumieu, in conformity with their wishes, prepared a second design for No. 49, which has been carried out by him; Messrs. Perry & Co., of Bow, being the builders; Mr. Frampton doing the carving for No. 48, and Mr. Kelsey that for No. 49, from full-size details furnished by the architect. The figure of David was executed by Mr. Wyon, the sculptor, as well as the figure of Plenty and the medallions, from small sketches by the architect.

Cheltenham Borough Surveyorship.—Mr. D. J. Humphris has been re-elected to this office, as newly constituted.





STREET ARCHITECTURE: No. 74, CORNHILL, LONDON.—MR. THOMAS T. SMITH, ARCHITECT.



STREET ARCHITECTURE: Nos. 48 & 49, CHEAPSIDE, LONDON.——Mr. R. L. Roumieu, Architect.

A VISIT TO MOLD AND ITS NEIGHBOURHOOD, NORTH WALES.

THE churches of North Wales are mostly of a very mean description, which must be mainly attributed to the poverty and scanty population of this mountainous district. Those churches in which superior work occurs are mostly Perpendicular. Among them are the large and rich churches of St. Giles, Wrexham (fully described in the *Builder*, vol. xxxi., p. 809); All Saints, Gresford; and St. Mary, Mold.

Mold was formerly written Mould, and in Welsh, Yr Wyddgrûg, *i. e.*, a barrow or mound; and hence, also, Mons Altus, a lofty mount. The town is situated in a fertile valley, near the river Alyn. The neighbourhood abounds with lead ore, and the mining and smelting works give employment to a large number of labourers.

The church consists of a nave, aisles, south porch, vestry-room (north side), polygonal apse, and a square tower at the west end, containing six bells. The dimensions of the church are stated to be 124 ft. in length, including the tower, but not the apse. The width of the nave and aisles is 61 ft., the nave being 24 ft. and each aisle 16 ft., and the piers 2 ft. 6 in. square. The present church is described by Rickman as a "rich and beautiful Perpendicular church." It is dedicated to St. Mary, and was erected in 1500. It is noticed as early as the time of Henry VII. Of this edifice, the nave (roof excepted), aisles, and south porch only remain. The tower and the apse are modern, the former having been built in 1768, and the apse in 1856. The vestry is also a modern addition. The nave is separated from the aisles by piers, consisting of two three-quarter circular shafts, and two moulded shafts, with hollows between, the capitals and bases being octagonal. The former are moulded, with sculptures, and the latter are moulded and stilted. There are seven depressed arches on each side, with vaulting-shafts springing from angels, holding shields, with armorial bearings.

In many churches the plain surfaces of the nave arcades were relieved by wall-paintings of a religious character; in Mold Church sculpture has been freely introduced.

In each spandrel over the nave arches is a circle, with an octafoil, and above these is a continuous horizontal broad band of squares, with circles, &c., containing quatrefoils, shields, and devices, and a string-course with animals. The clear-story-windwos are mere square openings, and the roof, which is modern, is low, and hardly seen from the outside. The tie-beams are moulded, with knees. The richness imparted to the nave by the predominance of surface-sculpture, and the absence of plain surface, tends to confuse and bewilder, rather than to please, the eye. The west gallery has been cleared away, exposing the side of the tower, and there being no tower-arch, as is usual, but only a small doorway, a large blank surface is exposed to view. This remarkably ugly feature has been partly covered by marble tablets, which, contrasting with the rich arcades of the nave, present an offensive appearance. The mural marble monuments are in memory of John Davies, of Gwissaney, 1705; Bethel Whitmore, 1731; wife of John Wynne, of Tower, 1737; Roger Wynne, of Tower, 1776; William Wynne, of Tower, D.D., rector of Llanvechen, 1776; Louise Bertrand, 1789; Margaret, wife of Sir George Wynne, 1793; Rev. Thomas Williams, A.M., curate, 1801; Watkin Griffith, of Rhual, 1803; Thomas Griffith, of Rhual, 1811; Wilson Henry Jones; and — Lloyd, Bishop of St. Asaph.

At the time when the church was "altered and beautified," in 1856, at a cost of 5,000*l.*, the galleries and all the high pews on the ground-floor were removed, and new solid oak benches, with poppy-heads, together with a carved pulpit, with stalls for the clergy of the same material, were introduced. The pulpit stands on the north side of the nave, by the east end. The eagle lectern was the gift of William Walcott Shand, of Gwysaney Hall. The nave and aisles are paved with stone.

The windows of the aisles have depressed arches. They are in four lights, with cinque-foiled heads, and trefoil-headed lights in arches, with quarry lights. The east windows are in five lights, with ogee heads. The window at the east end of the south aisle is adorned with painted and stained glass, in memory of David Hughes and his wife, placed there by their children in 1863. The window in the wall near it is to the memory of Henry Raikes, of Llwynegryn. It illustrates, in eight panels, the parable of the Talents. Another memorial window, at the west end of the south aisle, is in memory of Lizzie, wife of W. B. Marston. The prominent figures are Moses striking the rock, Christ's baptism, Christ blessing little children, Christ conversing with the woman of Samaria, and the visit of Nicodemus to Christ.

The above five subjects alluding to water and baptism, are appropriately introduced; the font was removed to this part, west end of south aisle, in 1864, in consequence of a new west doorway and entrance being effected; the cost of the latter was borne by the family of the late Henry Raikes.

The font is of stone, raised upon three steps, octagonal with angular buttresses, and panelled with quatrefoils, shields, &c. It is of good proportions, and large enough for total immersion. The lid is of oak, flat, and embattled on the edge with a Scriptural quotation, with a cross on the top. The date of the font is 1847, being the gift of Miss Clough.

Affixed to the wall over the inner doorway of the south porch are large benefaction boards.

Of monuments and brasses in the south aisle, there is an ancient canopied stone mural monument at the east end, with a modern marble monument ridiculously fixed in it. Beneath the window at this end is a brass plate in memory of the Rev. Richard Davis, vicar of Rhuabon, 1746. In the south-east angle is an Italian monument, of marble, with broken pediment, arms in centre, supported by two fluted Ionic columns. On a pedestal in full relief, is a statue with a Roman toga, resting with one arm on an urn, to the memory of Robert Davies, a distinguished antiquary of Llanerch, 1728. The sculptor was H. Cheere. The following mural monuments and brass plates are also on the south wall of this aisle—a marble scroll tablet to Robert Davies, 1710; a brass plate to William Lloyd, of Berfridd, 1739; and two elaborate brass plates, one to Henry Raikes, of Llwynegrin, 1863; and the other to Frederick Philips, of Rhual, 1866.

Also a white marble Mediæval tablet to John Wynne Eyton, of Leeswood, and daughter of Robert Lloyd, 1847; to the Rev. Hope Wynne Eyton, vicar of this parish thirty-two years, 1824; Margaret Sidney, daughter of Edward Jones, of Wepre Hall, 1826; John Langford, 1836; and to the wife of Thomas Whitley, of Bronioed, 1800.

The south porch is raised seven steps above the churchyard, with three additional steps to the floor of the church. The roof is an open span, with diagonal buttresses,—pinnacles are wanting. There is a seat on each side, and the floor is paved with modern encaustic tiles.

The organ is on the floor at the east end of the north aisle; the memorial window at this end is to the Rev. Robert Wynne Eyton, M.A., late vicar of Northop. The north aisle contains a marble Mediæval tablet to William Williams, 1839; and another tablet to the wife of the Hon. Charles Napier, 1834; and also Field Marshal Sir Alfred Clarke, G.C.B., 1832; an elaborate white marble Mediæval monument to Charlotte, daughter of T. Griffith, of Rhual, 1819. A brass plate in memory of John Jones, of Bistree, 1721; cut in stone beneath the above is 17. MPEI, 1697.

In the several windows of aisles are fragments of ancient painted and stained glass.

Near the north door is a flat stone, over the remains of Richard Wilson, R.A., 1782.

A small vestry-room of Late Perpendicular style has been added to the north door. The labels to the windows have stringy foliated terminations.

The roofs of the aisles are of a low pitch with tie-beams.

The new polygonal apse is raised two steps above the nave floor. The five windows of the apse are of an earlier character, in three transomed lights with cinquefoiled heads; the stained glass is by Wailes, of Newcastle-on-Tyne. The three central windows contain the principal incidents in our Saviour's life, at the cost of 400*l.*, raised by public subscription, as a testimonial to the vicar, the late Dean Clough. The two side windows are memorial, one is to the memory of the late Colonel and Mrs. Philips, of Rhual; and the other in memory of the Rev. Hope Wynne Eyton, vicar of Mold. The labels over the windows externally are supported by soulless Mediæval heads. In the south-east angle of the apse is an octagonal embattled turret. The apse is paved with modern encaustic tiles; the altar-rail is of oak, and arcaded with trefoiled heads to arches.

On the external and internal cornices are between 200 and 300 carvings of animals and fabulous objects; they are distributed equi-distant, mutilated, and now not unlike clouds on a summer's evening; the mind can picture to itself any forms it can imagine. These sculptures have not been improved by the "Restoration." Rickman considers them curious examples, "being a complete chase of cats, rats, mice, dogs, and a variety of imaginary figures, amongst which various grotesque monkeys are very conspicuous." An architect should never visit a church without a field-glass; it is of great value in rendering intelligible the various sculptures.

One reason assigned for the very curious, grotesque, and sometimes disgusting sculptures in our cathedrals and churches, is that in regular churches the seculars were ridiculed, and in secular churches the regulars. The Christianity taught by the so-called regulars must have been rendered nugatory, and the morals of the people debased, by these vagaries. It has been also conjectured that there were rites in the Mediæval church which strongly partook of the same character as these sculptures, and that the grotesque was felt to be, in its due mixture and proportion, an ingredient of the sublime.

It has been asserted that the most simple forms which agree with good taste are not called beautiful unless they are placed in direct opposition with something ugly. Surely an educated mind ought to be able to appreciate a beautiful object without its being placed in juxtaposition with an ugly one.

Externally, the body of the church, including the apse, is embattled; the buttresses are in two stages, with ogee canopies, crockets, and finials, supported by carved heads. The buttresses are surmounted with pinnacles set diamondwise. The parapet, buttresses, and strings of the new apse, are exactly copied from, and range with, the body of the church. Instead of repeating the pinnacles of the church, loftier pinnacles have been put, presenting a most ridiculous appearance, being shored up with iron crowbars.

The gargoyle heads to the rain-water spouts of aisles are absurdly large, which is often the case in Late Perpendicular churches.

While in the church a funeral took place: a young woman who died of typhus fever one day, was buried the next day; other members of the family had recovered from the same malady. A fine view of the country is obtained from the churchyard, and the picturesqueness of the sad scene was somewhat enhanced by the clergyman conducting the body to the grave with a college-hat on his head.

Numerous tumuli are to be seen in the neighbourhood; in 1832, a barrow or cairn was discovered near the railway station at Mold; it consisted of large slabs of stone and pieces of broken pottery, a number of amber beads, a few bones which formed an entire skeleton, and a complete breastplate or gorget, in one entire piece (a sheet of pure beaten gold), weighing seventeen ounces, embossed with various patterns in high relief, over its whole surface; the skeleton within it was 41 in. in length. This relic was purchased by the trustees of the British Museum, and valued at 70*l.* It has been engraved in the "Archæologia," vol. 26.

A favourite journey of tourists from Mold is to the mountain called Moel Famman, 1,845 ft. above the level of the sea, seven miles from the town to its summit. In 1810, a monument was erected on it, in the Egyptian style, 150 ft. high and 60 ft. wide at the bottom, to commemorate the fiftieth anniversary of the reign of George III. On the summit is a room for visitors and there is a shed for horses. In 1864, the pyramidal portion was blown down, and it is to be regretted that no effort has been made to restore it, the more especially as the monument is a very conspicuous object from long distances on land, and is also seen as a landmark from many miles off far out at sea.

Of the public erections in Mold, a fountain and clock were placed in the town in 1864, in memory of the Prince Consort. There are two market-halls, county-hall, National schools, militia barracks, savings bank, and others. The places of worship, except the church, are all of the dissenting class, and as numerous and various as the shops in the town; there are chapels belonging to the Roman Catholics, Calvinists, Welsh Independents, Baptists, Nonconformists, &c. If they would only practise what they preach real good might emanate from them.

The gentlemen's seats around the town are

many, and all picturesquely situated. About one mile from Mold is a mansion of historical interest, having a lofty attached embattled tower; the latter of the date of the fifteenth century. It was formerly the residence of Reinalit ap Gryffydd ap Bleddyn. It is tenanted by a farmer, and has a desolate appearance.

Meeting a London friend when returning from Mold, he rebuked me for wasting my time in staring at old churches and monuments. I interrogated him as to his amusement: "Oh, fishing," said he. "And what did you get for your fish?" "A good dinner," was the reply. I reminded him that the productions of art may be enjoyed by the whole world, without being consumed; whereas he consumed his object.

The local guide-book to Mold, there is but one, and of recent date, being the first, well printed with 100 pages, contains very little information, and that not of an instructive kind. It is of a philosophical nature, dreamy, and appears to have been written by a preacher. "The eye of sense," says its author, "tracing scanty foreshadowings of the brightness, with dark omens in the aspect of the times," "wistful glances strained through darkness," "superstition floating in the air," and "looking with loving eyes to draw pure and holy inspirations." These ideas may be in keeping with "wild Wales," but are really too much for tourists, especially flying tourists, who seek information at once. The "Dream of Brother Meyrick, a Monk of Basingwerk Monastery," the "Battle of Allelula," and the "Ancient Druids," occupy many pages. If Murray would issue a series of cheap local handbooks, they would be very acceptable to tourists.

W. PETTIT GRIFFITH, F.S.A.

COLONIAL ART-GALLERY.

THE sum of 500*l.* having been voted by Parliament towards the formation of a picture-gallery in Sydney, the best mode of disposing of it has become a question. At a recent meeting of the council of the Academy of Arts there, a minute by Mr. J. E. Thomas was read. In the course of it the writer says,—

"A national gallery should illustrate what is truly great in art; should set before the public pictures that are the works of master minds, or good copies of them, and not be filled by a lot of rubbish manufactured (as I myself have often seen done) in Wardour-street, and sold to the uninitiated as 'old masters'; nor should it be filled with 'little bits' of water-colour drawings, which, however 'pretty,' find no place in the great galleries of Rome, Florence, Dresden, Paris, &c.

In forming the nucleus of a national collection of pictures in Melbourne, the Government or their advisers appear to have been aware of the fact that the greatest works of the 'old masters' are in fresco, and adorn great public buildings, and cannot be removed; that their easel pictures (principally studies for larger works) are for the most part already in the great National Galleries of Europe; and that even those in private collections are catalogued, and their histories all well known to picture-dealers; and that an opportunity is rarely afforded for their purchase, and that even then they fetch fabulous prices,—as, for instance, the famous picture of 'The Ascension of the Virgin,' by Murillo, which was bought by the French Government for 23,000*l.* Knowing, I say, all this, the authorities in Melbourne very wisely determined to commission competent judges in England to purchase paintings by the great masters of our time; and in so doing, they, in my opinion, adopted the right course, and one worthy of being followed by the Government of New South Wales.

A gallery, however, such as that in course of formation in Melbourne or that proposed here, would undoubtedly be greatly enhanced in value, if good copies of some of the masterpieces of art in the world were added to the collection, seeing that it is hopeless to ever expect procuring the originals. When recently visiting the galleries of Rome, Florence, Paris, &c., I observed that there were a large number of painters engaged copying works of art,—artists who are, perhaps, for the most part incapable of originating anything themselves, although they can reproduce on canvas the thoughts of others, in a like manner as an instrumental performer of music can render perfectly the compositions of the greatest musicians, although himself unable to compose a single bar. These copies, I know, can be procured at a very reasonable rate; and I therefore do not see that the 500*l.* voted by Parliament can be better expended than in the purchase of two or three good copies of well-known great works of art."

This is very good advice, and we trust that it will be followed, not to the exclusion of original works of art presently, as they may be obtainable, works even of a much lower order of art than the great creations pointed at above, but as the best means of obtaining at moderate cost a substantial and educationally valuable nucleus of a national gallery. A competent person should be employed to obtain the copies, to ensure their being good, and the name of the copier should in all cases be preserved. The value and interest attaching to the copies would often be increased by the reputation afterwards obtained by the copier as an originating artist. We should be glad to see steps taken to provide perfect copies of the world's masterpieces for cities and towns even much nearer London than Sydney.

THE NEW LIGHTHOUSE OFF NORDERNEY.

ONE of the most dangerous parts of the German Ocean is the low-lying coast of East Friesland, the north-western portion of Hanover. The low-coast country lies below the level of the sea, and is protected by embankments and dykes, similar to those of Holland. It is lined with small islands and sandbanks, the latter generally visible at low-water, but offering innumerable hidden dangers to the navigator at high-tide. One of the largest islands is that of Norderney, a fashionable bathing resort in summer, surrounded by numerous shoals. At low-water it is connected with the mainland by a slip of land, along which carriages may be driven without danger. That part of the Friesian coast is therefore full of perils, especially when a nor'-wester is blowing, to the fury of which the coast is especially exposed, and the need of another lighthouse, to fill up the gap between the beacons of Borkum and Wangeroog, has been long felt.

That object has at last been accomplished, and the new lighthouse off Norderney is now ready, and will begin to guide the numerous vessels passing along the coast on the 1st of October next. The stonework of the structure is 200 ft. high, and forms an octagonal column on a proportionately high substructure of 20 ft. square. The weights of the clockwork moving the lighting apparatus, weighing about 3 cwt., are protected by a column, which, with the broad, commodious stairs, takes up the interior space of the tower from top to bottom. The lighting apparatus, on the platform of the tower, one of Fresnel's first-class, consists of a lamp of five burners and twenty-four refractors. The lamp is fixed, but the refractors are movable, making a complete revolution round the lamp in exactly four minutes=240 seconds. Observed from a distance, the most powerful reflection, called the "blink" by sailors, is therefore seen every ten seconds, which gradually decreases again and then increases to a powerful white light. Rolls round the bearer protect the apparatus against the rockings of the tower in stormy weather. The clockwork goes sixteen hours without winding up. The cost of the Fresnel apparatus is 3,450*l.* The total sum expended for the lighthouse, including a substantial house for the attendant, is 30,000*l.*, or 150*l.* per current foot of masonry. A submarine telegraph connects the lighthouse with the telegraph station on the island and the German telegraph net.

FROM SCOTLAND.

The Price of Coal and the Gas Supply.—At the last meeting of the Glasgow town council, the Lord Provost, in referring to the cost of manufacturing the gas for the supply of the city, remarked that he was sorry to say the difficulties of the gas committee last year had arisen from the exorbitant price of coal. The miners, as they were all aware, had, by creating an artificial scarcity of coal, sent up the price to such an extent as, he thought, had injured their own interest, because it had not only been the means of bringing in a great many additional competitors, but it had also checked the export of coal, and very seriously injured the whole industrial trade of the country. The Glasgow gas commissioners were, like all others, suffering from that artificial scarcity, and he found that they paid for coals this year no less than 70,779*l.* more than in 1871-72, and 27,285*l.* more than they did in 1872-73. The price of coals in 1871-72 was 13s. 6½d.; in 1872-73 it was 17s. 10d.; and for this year, 20s. 4½d. In addition to that, believing that the consumption of gas would go on with the increase of the town, they increased their producing power so as to furnish to the extent of 11,000,000 cubic feet of gas per day. Instead, however, of the town consuming 11,000,000, there had been no increase in the consumption of gas, but rather a falling off of about 5,000,000 cubic feet, as compared with the previous year. This was accounted for by the brightness of the weather and the short hours of the workmen. He went on to say that they had great trouble with their coal contracts. In these circumstances, seeing they had a deficiency of 14,000*l.*, they did not think it would be desirable to make any alteration at present in the price of gas.

Peat Manufacture.—Mr. James Walker, Superintendent of Works of the Highland Peat Fuel Company, South Morar, has addressed a letter to Mr. Thos. Sloan, one of the directors, an extract from which cannot fail to interest those who are watching the various attempts to utilise peat as fuel. Mr. Walker says:—"I see it stated as the result of the experience of the Dumfriesshire Peat Fuel Company, that their manufactured peat dried faster in the open air than under shedding. I am astonished at this assertion, and I think it right to let you know that our experience here is exactly contrary. For example, on the 29th of July last, I had our shedding cleared out and the fuel spread on the moor. Subsequently I had the shedding filled with fresh macerated peat. Thereafter the weather became broken and showery until the 19th August, when having to despatch a cargo of our manufactured peat, I was able to procure a quantity of well-dried fuel from the shedding; whereas I could not get any fit for shipment from the lot that had been exposed in the open air, although it had been manufactured so much earlier, and was even partially dry when exposed to the open air. The shedding in which peat fuel will not dry quicker than in the open air, in the variable weather of Great Britain must be faulty in construction. The other drawback experienced by the Dumfries Company is stated to be the lightness of the peat. If the raw peat was of inferior quality it would certainly be light; but even inferior peat should be much heavier, when macerated and condensed than it would be when made into fuel in the ordinary way without maceration. The manufactured peat from our works will compare favourably with most coal, as any one who examines it will immediately perceive. I am glad to say that our large machine continues to work splendidly. The enormous quantity passed through daily taxes all our powers to supply the trays on which the fuel is placed. I am sorry for the unsatisfactory experience the Dumfries Company have had. They need not be alarmed at the fall in the price of coal. It is not likely that such a great quantity of peat fuel will be produced for many years as to come into competition with coal. The condensed peat fuel, however, will always command its own consumers, and will be found preferable for many purposes to any other fuel. At all events, we can produce it at a handsome profit even if the coal were lower priced than it is likely to be."

Piping for Dundee Waterworks.—At a meeting of Dundee Water Commissioners last week, there were three offers to supply piping under the new Act, by which additional works are to be executed. The meeting accepted the lowest offer—that of Messrs. Eddington & Sons, and D. Y. Stewart & Co., Glasgow, at the sum of 28,034*l.* 9s. 7d. This embraces the laying of pipes from Dronley to Dundee.

THE METROPOLITAN DISTRICT COMPANY'S NEW RAILWAY TO HAMMMERSMITH.

BY the new line of railway in continuation of the Metropolitan District Company's line, direct to Hammersmith, recently opened, as we have already mentioned, the District Company have railway communication direct between the Mansion House station and Hammersmith, and the journey is performed in little more than twenty minutes; whereas the present route by the Metropolitan, *viâ* Moorgate-street, Farringdon-street, and King's-cross, occupies almost double that time. The new line, which does not exceed one mile and a quarter in length, commences by a junction with the District Company's line, between the Earl's-court and Addison-road stations, and is carried forward to the east side of Broadway in Hammersmith, entirely through an excavation. And here it may be said that the gravel upon which the contractors came is said to be the finest and most valuable which has yet been found around the metropolis. Two bridges cross over the line—an iron girder bridge at North-end, Fulham, and a stone bridge of two arches a short distance from the Hammersmith terminus. The station at Hammersmith is a large and very commodious structure, arranged and fitted with every regard to an extensive traffic. The elevation of the station is a prominent feature on the east side of Broadway. It is built of white Suffolk brick, with stone dressings, the elevation at each end being brought forward to the line of street, whilst the central portion, with two entrances, forms a colonnade. From the booking-offices, on each side of which there are waiting and refreshment rooms, the platforms are reached by three flights of stairs,

6 ft. in width. The stairs are fitted with "Hawksley's patent tread," the invention of Mr. T. Hawksley, C.E., which has only recently been introduced in railway and other structures. Its advantages are the durability of the surface of the stairs combined with safety and freedom from slipping. There are three platforms, 15 ft. in width and 350 ft. in length, all covered in to their entire length. They are all paved with asphalte, and coped with Staffordshire blue brick. The extreme width of the station is 95 ft., there being a double line of rails on one side of the central platform, and a single line on the other. There is also an intermediate station at North-end, Fulham, with two platforms, 250 ft. in length, covered in to the extent of 85 ft. The contractors for the whole of the works are Messrs. Kelk & Lucas.

THE TRAMWAY COMPANIES AND THE PAVING OF PUBLIC THOROUGHFARES.

A QUESTION of considerable importance has just been settled as to the powers possessed by the Board of Trade over vestries and local boards with regard to the paving of public roads used by the tramway companies. The London Street Tramway Company, on the lines which they are now laying down along the Kennington Park-road, Newington-butts, Newington-causeway and Great Dover-street are using granite cubes. The Newington vestry required the company to substiute wood for stone, to which they declined to accede, appealing against the vestry's requirement to the Board of Trade, who in their turn decided against the vestry, and gave their sanction to the Tramway Company laying down the granite cubes, which they proceeded to do in carrying out the works. Thereupon the vestry resolved upon taking steps in Chancery to obtain an injunction against the company, at the same time disputing the jurisdiction of the Board of Trade, and contending warmly against the Government Board having power over them with reference to the pavement of the streets and roads within their district, as a vestry supposed to have absolute control over such roads. Before, however, filing a bill in Chancery, the vestry clerk advised that the opinion of counsel should be taken as to the powers of the Board of Trade. The opinion of the Hon. Mr. Thesiger, together with that of a counsel practising at the Chancery bar, has been obtained, which is to the effect that the Board of Trade has jurisdiction in the matter, and power over the vestry, to approve of the mode of construction of tramways proposed by the companies, with regard to the materials intended to be used in the pavement of streets along which such tramways are laid. With this opinion before them, the vestry, at their meeting last week, decided that it was not advisable to take any proceedings in Chancery to obtain an injunction against the company. The result of these proceedings, therefore, seems to indicate that so far as the action of tramways is concerned, the powers of vestries are limited as to the pavement of streets.

SOUTHPORT WINTER GARDENS AND AQUARIUM.

IN an account of this admirable institution in the *Builder* of September 19th, 1874, the names of eleven persons or firms connected with its construction are given, and I have no doubt but that it was by the merest inadvertence that the writer omitted to make up a round dozen by mentioning that at the commencement of the work I had the honour of assisting in it in some small degree when I was consulted about it; and by a similar accidental omission, doubtless, the author of the description did not make up "a baker's dozen" (thirteen) by stating that one of the most important parts of the entire thing,—no less than the planning and providing of the machinery for keeping in motion the water in the aquarium, is due to Messrs. Leete, Edwards, & Norman, of 366, Euston-road, London. This firm has of late years given much attention to aquarium engineering, and they have, in a satisfactory manner, carried out work in the aquaria at the Crystal Palace, Vienna, Naples, and elsewhere. They are also in treaty for similar work in many other aquaria now projected or in contemplation. The portions, particularly stated, which Messrs. Leete, Edwards, & Norman executed at Southport, are the two steam-engines, with the pulleys and shafting connected with them, the vulcanite air and water-pumps (Forbes & Edwards's patent), and portions of the vulcanite pipes.

The general plan adopted in the Southport aquarium consists of the following threefold arrangement:—

1. A circulatory system, in which the water is continuously pumped from a large dark reservoir into tanks containing the animals, these tanks having an aggregate capacity smaller than the reservoir. The water flows from tank to tank until, having reached the last, it falls into the reservoir, and is thus used without being changed, though Southport is on the sea. This plan is the best known one.

2. A circulatory system in which the water is continuously pumped from the dark reservoir into show tanks containing animals, only the water does not flow from tank to tank, but falls from each tank, possessing its own overflow, direct into the reservoir. This plan is not so effective as the first, but when as at Southport it is applied to comparatively small and shallow tanks, possessing a large aërating surface, its defects are not so much felt as if the tanks were larger and deeper.

N.B.—In addition to the lower reservoir there is at Southport what is termed a high-level reservoir, which, however, does not materially interfere with the general working and results.

3. A system whereby no water, but only air is pumped through the water from the air-pump before named, and conducted through a tube opening near the bottom of the water in the tanks. This is the least advantageous and most wasteful mode of imparting motion to the water, as I explained in my article in the *Builder* of July 25th last. This article has been since expanded into a pamphlet of twenty-four pages (with your permission), and it is sold in the Crystal Palace Aquarium, price 2d.

As these three plans are all at work in one building at Southport, means will be thereby afforded for easily testing their respective efficiencies, and provision has been made for converting, when needed, the entire mode of operation into the first and best one. This, I think, will ultimately be done, when more experience has been gained.

It will be remembered that in the *Builder* article of July 25th, I commented on the fact that properly aërated water can never become stale in aquaria, if to be "stale" means to be unfit for the respiration of animals which breathe it. Since then I have obtained some living whitebait, which are only the young of the common herring, and also some young pilchards, and both are now living, feeding, and growing in our Crystal Palace sea-water, which is sparklingly transparent and colourless, though it has not been changed, nor yet even filtered, since it was obtained four years ago. The life of these little fish, and of all the herring tribe in aquaria, hangs on so very frail a thread, that it is snapped asunder by an inconceivably small disturbance of condition. Their permanent maintenance, therefore, affords a very delicate test of the efficiency of any aquarium. They are also kept in the Manchester Aquarium.

W. A. LLOYD.

NEW GAS WORKS AT DEWSBURY.

THE Corporation of Dewsbury having bought the rights and powers of the Dewsbury, Batley, and Heckmondwike Gas Company, are about to construct new works at a cost of about 50,000*l.*

The works, which are to be erected at Savile Town, will be placed on a plot of land about ten acres in extent. When the works have been extended to their utmost (at least so far as present contemplations go) the corporation will be able to manufacture three million feet of gas per diem. In connexion with the present works a retort-house, 220 ft. in length, and capable of producing one million feet of gas per day, will be built near the large tank; and on the oblong side of this, running parallel with it to the same length, a coal store, capable of containing 3,000 tons, will be formed. It is understood that the corporation is about to give instructions to their manager to advertise for tenders for the construction of the purifiers required in the works; for the building of sheds for the storage of oxide of iron; and for the erection of a large tar-well, capable of containing 1,000 tons of tar and ammoniacal liquor. Besides the gas-works proper, tenders will be required for the erection of offices for the weighmen and engineers, and workmen's houses (one being for the foreman of the works, and three cottages), station meter-house, governor-house, and permanent smiths' shops, as well as for several store-rooms, boiler and engine houses. There are at present about 100 men—excavators, bricklayers, quarrymen, &c., on the job. Mr. George Biddle, the borough surveyor, is the architect for the buildings; Mr. A. D. Carter, is the draughtsman and assistant-engineer; and Mr. Richard Broderick, late superintendent of the Dewsbury, Batley, and Heckmondwike Water Works extension, at Dunford-bridge, is the clerk of the works; and the whole is under the management, superintendence, and direction of Mr. Charles Arthur Craven, the manager of the Dewsbury and Batley Gas Works, and by whom the new venture has been designed.

HELP TO GOOD WORKMEN.

SIR,—A hint as to the method I have adopted with some of my men when asked by them for an extra ½d. or 1d. per hour may perchance be useful to employers of labour. Masters, as a rule, I believe, do not object to pay extra money where the man is worth it, and where they know it will tend to increase the home comforts of the man. What they do object to is to be helping in making the fortune of the adjoining public-house. If I consider either of my men worth an extra ½d. or 1d. an hour beyond the rest (and the men soon find that out themselves), I say to him about as follows:—"Well, Jim, I don't object to give you another 1d. on the condition that you continue to draw the same amount as now at the pay-table on Saturday, and the amount of the extra 1d. (say 56 hours, making 4*s.* 8d. per week) be placed by you in the Post-office Savings Bank." Jim brings me his bank-book every Monday morning to show that he has kept up his payment, our conditions mutually being that if he fails to pay in any one Saturday the next week he forfeits his claim to the extra wage of 1d. I find this system answers; not on one single occasion have I found a payment missed since I commenced it, now some six months ago. The consequence is some men have already 5*l.* or 6*l.* to their credit. C. E. R.

P.S.—The Post-office Savings Bank not taking odd money, the amount paid in is generally 5*s.*

OPENING OF NEW SCHOOLS AT GRIFFITHS TOWN, MONMOUTHSHIRE.

THESE schools were publicly opened on the 14th of September by a treat to the school children. The buildings stand upon an elevated site, facing the Monmouthshire Railway and Canal, and can be well seen from either of these places. They are a simple Gothic structure, with but little attempt at ornamentation. The buildings generally are of hard Pennant stone from Glen Forest and Abergavenny, with Bath-stone dressings, the timber-work of red pine, all internal work stained and varnished. The schools accommodate 90 boys, 90 girls, and 110 infants, allowing 9 superficial feet per child, and including master's house, boundary walls, and all necessary offices; cost, a fraction over 6*l.* per child, which, considering the difficulty of getting materials on site, is exceedingly low. The contract was taken, and has been well carried out, by Mr. William Jones, builder, Newport. Mr. E. A. Lansdowne was the architect.

DECORATION OF THE NOTTINGHAM MECHANICS' INSTITUTION.

RECENTLY the committee of the Nottingham Mechanics' Institution advertised for designs for the decoration of their large hall, at the same time offering prizes of 20*l.*, 15*l.*, and 10*l.*, for the three best. Some twelve or fourteen firms responded to the advertisement from various parts of England, and after the designs had been critically examined by an official from Kensington Museum, the first premium was awarded to Mr. Crossley, decorator, of Newark, and his design was adopted, and has now been carried out by him. The room is a paralellogram, with circular ends, having fourteen circular-headed clearstory windows, and the same number on the ground-floor. The ceiling is divided into equal panels, converging to centres at each end. The style of decoration and colouring adopted is Italian Renaissance. The panels of the ceiling are of a pale blue, with a rich border of light vellum colour on a gold-coloured ground, with angle ornaments of a rich gold

colour on a warm red ground. The raised beams or styles are painted a lighter vellum, with ornaments in gold colour springing from a central boss of gold. Round the whole of the ceiling is a goloshe ornament in neutral green, crimson, and gold, which has a pleasing and decided effect. Between this ornament and the wall cornice is a cove 9 ft. deep. This is divided into squares and oblong panels, with gold grounds, upon which are painted elaborate ornaments, with cherubs, vases, water-fowl, &c., life-size, in white cameo. The cornice below is picked out in vellum, crimson, and reds and gold, with a fringe of turquoise blue and gold colour. The wall beneath is of a green grey.

THE RECTORY NURSERY ESTATE, EAST DULWICH.

The Rectory Nursery, in Crystal-palace-road, East Dulwich, comprising an area of nine acres in extent, and which has been celebrated for about half a century as one of the finest in the metropolis, is about to be broken up, and laid out for building purposes by its present owner and occupier, Mr. Weller. The whole of the valuable stock of plants, flowers, fruit, and other trees, are announced to be disposed of, after which the estate will be laid out, and the making of the new roads and sewers commenced, preparatory to building operations being proceeded with. Nothing but handsome villas and high-class mansions will be allowed to be erected on the estate, and the several roads will be laid out in harmony with this intention. One of the intended roads will be called "Holly Grove," extending from Crystal-palace-road to Lordship-lane, and planted on each side with trees. Another road is to be called "Rectory-road," with villas, the buildings being confined to one side of the road only, the land on the opposite side being laid out with shrubs, plants, and flowers. The preliminary work of laying out the roads and constructing the sewers will be proceeded with during the ensuing autumn.

THE SANITARY STATE OF NEWQUAY, CORNWALL.

There has been one distinguished victim to the pest which has this year made Newquay a place to be avoided. Among the visitors who contracted typhoid fever while there, was Mr. Stephen Freemantle, brother of Lord Cottisloe. He has now died, and his death is causing widespread regret among university men. The sanitary authorities of Newquay have a charming watering-place to look at—there is scarcely any more attractive on the whole Cornish coast; but they have no drainage or sanitary arrangements worthy the name. Again and again have they been warned of their condition; but the warnings have been unheeded, and this summer there has been quite an epidemic of typhoid fever. Three years since Mr. Robert Morgan was sent down to make an official inspection. He recommended that a scheme should be prepared showing the lines of main sewers throughout the district, with an intercepting tank, and an outfall carried to low-water mark of ordinary spring tides, and that as far as possible the use of cesspits should be abolished.

THE CHURCH OF ST. DIONIS BACKCHURCH, FENCHURCH STREET.

The Ecclesiastical Commissioners have, under the power of the City Improvement Act, decreed the removal of the church of St. Dionis Backchurch, Fenchurch-street. This church, which was originally built in 1288, was burned down in the Great Fire of 1666, and rebuilt, from designs furnished by Sir Christopher Wren, in the year 1681. It contains many objects of archæological interest; amongst others, a monument, the costumes painted in colours, erected to the memory of Sir Arthur Ingham; and another to the memory of Sir Thomas Rawlinson, one of our greatest bibliopolists and antiquaries, at whose death the sale of his works occupied the whole of twenty-five weeks. In the vestry of the church are preserved four large two-handled brass syringes, which were at one time the only sort of machines used in London for the extinction of fires. The living will be affiliated to Allhallows, Lombard-street, to which church the mural tablets, monuments, &c., will be removed. The bodies deposited within the walls will be removed to the City of London Cemetery, Ilford.

SHEFFIELD SAW-MAKERS.

Sir,—I have read a paragraph in the *Builder* entitled "A Hint to Sheffield Saw-makers." It warns us that our old enemy, Harry Disston, of America, as he is styled, is about to take the bulk of the saw trade away from Sheffield.

It would appear that the secret of success is that Mr. Disston does not employ any Union men, and that they are so steady that they work from Monday morning to Saturday afternoon, and from year's end to year's end. If that is the way they work in America, I for one have no desire to go there; because they cease to become men and are mere machines. We are not much afraid of all the trade going to America.

He tries to make it appear that we are driving away the trade from the town, because we demand such high wages. The fact is we have a list of prices which we have worked for the last thirty years, and have never asked for an advance over that list, but have often worked considerably under it.

We are given to understand that American-made saws are all made by machine. Now it is a fact that, at the present time, all the busiest firms in Sheffield are those who manufacture hand-made saws. I have more to say, but, I think, this will suffice at present.

William Roberts,
Secretary of the Sheffield Saw-makers' Union.

SANITARY INSPECTORS.

I was much interested by the able article in the *Builder*, in reply to the query "who were fit and proper persons to be appointed Sanitary Inspectors?" What chance, however, is there for any professional man, when men are appointed as follows?—

	Area, Stat. acres.	Pop. 1871.	Salary. per ann.
Bodmin Union	88,981 ...	19,776 ...	100*l.*
Truro „	92,211 ...	41,722 ...	100*l.*
St. Austell „	57,446 ...	31,194 ...	100*l.*
St. Columb „	78,693 ...	16,799 ...	80*l.*

A horse is to be kept, and the inspector required to devote the whole of his time to the duties of his office! As a natural consequence, none but retired masons, bankrupt tradesmen, or such like, who have failed in business, are put in here by the instrumentality of friends, or because they will do it at a mere nominal figure, which pleases a Board of Guardians better than any other qualification as a rule. It clearly proves, as far as I can see, that the carrying out of the Public Health Act was placed in the wrong quarter to get it done intelligently and effectively. T.

PORPHYRY.

Will any correspondent of the *Builder* kindly inform me if there is any use for decomposed porphyry, and if it is of a saleable nature? I have several thousand tons on my estate. Mineral.

DAMPNESS IN STRONG ROOMS.

Sir,—I shall feel greatly obliged if any kind reader of your valuable publication will tell me how to cure a strong room of dampness.

The room is about 10 ft. by 12 ft., and 9 ft. high; the walls are 2 ft. 6 in. thick, formed of 6 in. slabs of stone, bricked up on either side with mortar of shell-lime and river sand. The roof is vaulted; the floor asphalted; the door of iron; and there is a single ventilating tube always open to the outer air, 2 in. in diameter. The room has been finished now fifteen months. It is attached to a jeweller's premises, and silver is invariably tarnished if locked up for a few hours. As every outlet renders the room more easily pregnable, it is important to have as few as possible. The temperature varies from 84° to 90°.

Madras. C.

SLAUGHTER-HOUSES.

Sir,—In the notice of the Slaughter-houses Act, in last week's *Builder*, the writer says, "By section 3 the sanction of the local authority (*i.e.*, the Metropolitan Board of Works) is made a necessary preliminary to the renewal of any licence." I venture to think that you will find that that section only applies to the establishment "anew" of the offensive businesses named, and not to the renewal of licences. The meaning of the establishment *anew* of a business is explained in the 13th section. The law respecting the renewal of the present slaughter-house licences is unaltered by the Act, and no alteration was needed, if there are to be such businesses in London at all, when the 55th and 56th sections of the old Building Act were taken out of the way, as they are by section 14. All the sanitary machinery of Vestries and District Boards remains untouched in respect to these renewals.

But with regard to the establishment of new businesses, the sanction of the Metropolitan Board of Works is necessary, and that having been given, the justices are to grant the first licence "as a matter of course." That arrangement appears to be made necessary in order to prevent conflicting jurisdictions; but the licence once granted, there appears an awkwardness in allowing the Metropolitan Board of Works, without a sanitary staff, as well as the Vestries and District Boards with all their sanitary appliances, to show cause against the renewal of these licences for businesses legally established anew, as is provided by the 10th section. I see no muddle, beyond this, likely to arise.

Chas. Laher, Clerk to the Vestry of Chelsea.

HOARWITHY BRIDGE COMPETITION.

Sir,—I can endorse all your correspondent, "Not the 'Man of Ross,'" said last week. I also competed for the bridge, and my design was based upon information contained in a page of note-paper. By the end of this month the directors will have had five months to consider, and although I have written to Messrs. Minett & Co., to whom the designs were to be sent, I have been vouchsafed no reply.

Your correspondent is even better off than myself. I do not know who the *directors* are. I should think your correspondent's ideas as to the law are right.

Perhaps some other of your readers have competed; if so, they might give us their experience.

Why Wye.

THE ROCHESTER COMPETITION.

The following letter has been addressed to the town clerk of Rochester, and should have the attention of the corporation:—

CASTLE GARDEN ESTATE, ROCHESTER.

Sir,—I have received the conditions as to competitive designs for these houses, and in reply may I ask your attention to the following statement, and that it may be laid before the committee (if any) having charge of the matter?

Had you instructed an architect to prepare the designs advertised for, his charges would have been somewhat as follows:—

1.	Detailed drawings, specifications, &c., for gates, railing, &c., to park, work costing, say 300*l.* as a minimum, 4 per cent.	£12	0 0
2.	General drawings and outline specification, &c., for first house on plot 1, to cost 1,000*l.*, 2 per cent.	20	0 0
	Ditto ditto for second house, presuming it to be somewhat similar, 1 per cent.	10	0 0
3.	Ditto ditto for first house of terrace on plot 1B, to cost 1,000*l.*, 2 per cent.	20	0 0
	Ditto ditto for the other eight houses, to cost together 8,000*l.*, presuming they are as similar to the first as site permits, 1 per cent.	80	0 0
4.	Ditto ditto for house on plot 2, to cost 500*l.*, 3 per cent.	15	0 0
5.	Ditto ditto for first house on plot 3, to cost 500*l.*, 3 per cent.	15	0 0
	Ditto ditto for other three houses, to cost together 1,500*l.*, presuming they are similar, 1½ per cent.	22	10 0
		£194	10 0

This 194*l.* 10*s.* is by no means a maximum for the work required, a further per centage might probably also be charged by reason of the works not being intended to be carried out under the architect's superintendence. Many men would on that ground decline accepting the retainer.

With these facts before you it is unnecessary for me to point out more particularly the great inadequacy of the sums offered for the same work (30*l.*, 20*l.*, and 10*l.* Total, 60*l.*,—with the possibility of another 10*l.*, making in all 70*l.*), especially as it includes the privilege of selecting from several sets of designs, when nearly 200*l.* would have been paid for one set alone.

It amounts to but ½ per cent. on the 14,000*l.* to be expended, while the work is of such a nature as to necessitate a distinct and different set of drawings, &c., for each of the seventeen erections.

Upon these grounds, therefore, may I ask your reconsideration and amendment of the published conditions, as I feel sure you cannot be exactly aware of the labour required in complying with them. R. E. P.

FROM MELBOURNE.

The fourth annual exhibition of the works of pupils in the various schools of design associated with the Technological Commission was opened on 1st of July, in the annexe attached to the Public Library. There are in existence twenty-two schools of design, and of these nineteen are represented. The following are the names of the schools and the number of pupils attending each at the quarter ending December, 1873:—South Melbourne (Emerald-hill), 150; East Collingwood, 100; Hotham, 92; Richmond, 62; South Richmond, 78; Fitzroy, 81; Prahran, 48; St. Kilda, 35; Girls' School, St. Kilda, 41; Ballarat City, 190; Ballarat East, 92; Sebastopol, 38; Sandhurst, 50; Creswick, 34; Geelong, 85; Girls' School, Geelong, 46; Clunes, 73; Preston, 61; Brunswick, 28. The exhibits are equal in number, if not superior in point of ability, to those sent in at last year's exhibition. They include a great diversity of subjects.

The increase in the number of the members of the various trade societies of the colony has been so great that the committee of the Trades' Hall have felt it incumbent on them to erect more commodious premises. On the 26th of January last, Mr. John Curtain, M.L.A., laid the foundation stone, and on the 26th June the main portion of the building was thrown open for public inspection. The new Trades' Hall is situated at the corner of Lygon and Victoria streets, Carlton, the principal entrance being in the latter street. It has a blue-stone foundation, with the upper

structure of brick, which when furnished will be cemented. The building can claim no particular style of architecture, the limited funds at the disposal of the committee precluding them from anything on a costly scale. The erection of the whole building when finished will cost about 9,000*l.*, and upon that part completed 3,000*l.* have now been expended.

The usual half-yearly meeting of the Rockingham Jarrah Timber Company (Limited) was held recently at the offices of Messrs. James Service & Co., Melbourne. The reports from Western Australia were of the most encouraging kind, orders for timber being offered from nearly all parts of the world. The Cape of Good Hope, Mauritius, New Zealand, South Australia, and Western Australia are all large consumers of the jarrah, and its peculiar character ranks it in the first class as a timber for railway or sea works. The mill works were reported to be in excellent working order, and a new locomotive engine, made for the company at Fulton & Co.'s foundry, in Melbourne, had been shipped to Western Australia. The company will now have two locomotives and about thirty timber waggons. The company have already spent about 30,000*l.*, and expect to earn sufficient during the next year to plate the whole of their wooden tramway line.

MONUMENTAL.

Monument for Paisley to Alexander Wilson, the Poet and Ornithologist.—The heritors of the Abbey Parish of Paisley have met in the Abbey Church to consider a request by a number of subscribers for a monument to perpetuate the memory of Alexander Wilson, the poet and American ornithologist, for permission to erect a memorial at the corner of the recently-improved abbey burying-ground in Old Smithhills-street. The sanction of the heritors was given. The monument, which will be 17 ft. in height, will consist of a bronze statue of the poet on a granite pedestal. It is the work of Mr. T. G. Mossman, Glasgow.

A Statue for Derby of Mr. Bass.—The local public are informed by the *Derby Advertiser* that a project is on foot for commemorating in some suitable manner the services rendered to the borough for many years by their senior M.P., Mr. Bass. The proposal, says our authority, has gradually assumed a definite form. "The most fitting shape the memorial could take, because the most public one, would be a statue; and if a site could be found for it in front of the Free Library and Museum, which Mr. Bass's generosity will have enabled the town to possess, that would be the most suitable place for it. We understand that the Mayor intends very shortly to convene a meeting to consider the matter, and the proposal will then be made to pay for the statue by public subscription," restricted to one guinea.

New Monument at Rome.—A monument bearing the names of the men killed in the fighting at the taking of Rome on the 20th of September, 1870, has been unveiled. The Minister of the Interior and all the civil and military authorities attended the ceremony, and the Mayor of Rome delivered a speech, which was received with loud cheers of "Long live the King." A large crowd and a great number of national guards were present.

CHURCH-BUILDING NEWS.

Radstock.—A new church at Writhlington (Radstock) has been opened for Divine service. The building, which is in the Late Decorated style, and will accommodate one hundred persons, has been constructed on the site of the old parish church of St. Mary Magdalene, by Messrs. C. & F. Brown, of Frome, builders, the amount of the contract being 1,800*l.* The walls of the building are of local white lias stone, with Bath-stone dressings, and at the west end there is what can best be described as a semi-tower, which is built into the wall, and on the top of which is a turret containing two bells. On the south side is a porch and the only public entrance to the church. The eastern window is a painted one, by Horwood, of Frome; the remaining windows, with one or two exceptions,—coloured ones from the old building,—being of cathedral glass. In the interior, the eastern wall is cased with Bath-stone, in which are three quatrefoil panels with carved spandrels sunk to form a reredos. In the centre panel is a marble Maltese cross, and Tudor roses in marble occupy the side panels. The roof is an open one, the frame being of stained deal, and the seats in the building are of similar material.

High Wycombe.—The parish church is to be restored. The edifice, in the opinion of Mr. Street, R.A., who has reported upon it, is the finest, as well as the largest, in Buckinghamshire. The present building was erected in the reign of Edward I., upon the ruins of an older church, although the tower, which in its dimensions reminds one of the campanile of a large cathedral, was not put up till 1522. So much as 10,290*l.* will, according to the architect's estimate, be required for the contemplated scheme of restoration, which does not as yet include the dilapidated parapet and pinnacles of the tower. Of this sum 6,000*l.* have been already contributed or promised. Lord Carington, the patron of the living, gave 1,000*l.* to the fund.

Pirton.—An effort is being made to obtain subscriptions for the restoration of the parish church of Pirton. Plans have been prepared by Mr. J. L. Pearson, who has furnished a report setting forth the absolute necessity of something being done to preserve the building from decay. One portion, indeed, he reports in a dangerous condition.

Odcombe.—A meeting of the churchwardens and others interested in the restoration of the parish church has been held, at which a proposal was submitted from the incumbent, the Rev. G. Bale, to the effect that the church be restored according to plans by Mr. A. W. Blomfield, which involve the entire rebuilding of the chancel and nave, the lengthening of the latter, and the building of two transepts and an organ-chamber, at a cost of 2,130*l.*, the cost of which (beyond subscriptions of societies and the public) he undertook the responsibility of providing. It was unanimously resolved that the offer be accepted with gratitude, embracing as it does a restoration which has long been needed.

Freystrop.—The reconstruction of Freystrop church has just been completed upon the original foundations, the old walls upon the north and east sides being allowed to remain. A new vestry and bell-cot have been added, the former occupying the corner found by the nave and north transept, and the latter the apex of the western gable wall. A plan not very uncommon in old Pembrokeshire churches, and producing a very good effect, has been adopted with regard to the floor which is made to rise with a gradual slope from West to East. The internal fittings, floors, windows, doors, and roofs have been designed in a simple early style, by the architect, Mr. E. H. Lingen Barker, so as to suit the locality and materials, no clue to the original design being obtainable. The floor of the chancel has been laid with encaustic tiles by Mr. H. C. Webb, of Worcester, while the passages in the nave and transept consist of Peake's terro-metallic tiles, with a few glazed ones intermixed. The reredos is a rather elaborate design in Bath stone, and glazed figured tiles, from Godwin's manufactory, at Lugwardine. The wrought-iron and brass work have been supplied by two Birmingham firms, Messrs. Thomason & Co., and the Messrs. F. T. & A. Barratt. The roofs are all open timbered, plastered between the rafters, covered with Bangor slates, and crested with Peake's buff ornamented ridge tiles, with crosses above the gable ends in the same material and colour, from Mr. J. K. Cooper's Works at Maidenhead, there being no stone copings adopted. The only features of antiquarian interest have been carefully preserved. These consisted of a hagioscope, two square-headed recesses in the east wall of the chancel, and a Norman font in excellent preservation. The internal dimensions have not been altered, and are as follow: nave, 25 ft. by 14 ft.; transept, 12 ft. by 13 ft. 8 in.; and chancel, 19 ft. 4 in. by 13 ft. 6 in.; from which it will be seen the various parts were in good proportion. The accommodation is for 120 (exclusive of extra space for chairs), instead of 42 as heretofore. The contractors were Messrs. T. & J. Lloyd, of Haverfordwest.

Hanley.—St. Luke's Church, Hanley, after having been closed for cleaning and enrichment, has been re-opened for divine service. The alterations made in the appointments of the church are extensive. A new organ, the cost of which, several hundreds of pounds, has been defrayed by Mr. Henstock, of High-street, has been erected by Mr. Stringer, of Hanley. A chancel screen, surmounted by a cross, has been presented by the Rev. J. Hilton, curate in charge. A new organ-chamber has been erected, and space provided for the robing of the clergy and choristers. The walls have been painted, and they are now decorated with texts of Scripture. The ceiling of the chancel has been painted blue, with gold stars, and the woodwork throughout has been cleaned and varnished. Mr. R. Hammersley was the contractor for the additional building and the choir-stalls, and Mr. J. Scarratt for the painting and decoration. In addition to the organ and other offerings, there have been spent on the church about 300*l.*

Southampton.—The addition of an aisle to the north of St. Matthew's Church, left until the needs of the parish warranted such an enlargement or rather completion of the edifice,—for it is but part of the original design,—and finishes the structure as a whole,—is now in progress under the hands of Mr. H. I. Sanders, builder. The estimated cost of the undertaking is 800*l.*, nearly half of which is already subscribed, and the additional 200 seats thus provided will be found very convenient in a church whereat already large congregations attend. The vicar, the Rev. J. Bullen, it may be stated, had no idea of completing the church so soon after its erection until some unknown friend started the movement by a donation of 200*l.*; but now it is hoped that in two or three weeks the roof of the new portion will be on, and the consecration take place some time early in November.

Bishop Burton.—A new reredos has just been added to the church of Bishop Burton, from designs by Messrs. Clayton & Bell, of London, and constructed of Messrs. Powell & Son's vitreous material, the whole being wrought together in a mosaic of small pieces with cement. The structure, from the nature of its composition, is considered imperishable. The reredos forms part of the restoration of the church, the cost of which is provided by the late Mr. F. Watt.

Northampton.—At a meeting of the St. Giles's parishioners it was proposed that the report of Mr. Law presented by the committee be adopted, and that they be requested to appeal to the parishioners and the public for subscriptions to repair the chancel and the North and South chapels of the church, and to provide the necessary fittings for the chancel at an estimated cost of about 2,500*l.* Arrangements were then made to obtain subscriptions and carry out the work. It was resolved that subscribers should be requested to pay the moiety of the amount they intended to give by the ensuing Christmas and the remaining half by next Midsummer, and that the work should not be started before a certain proportion of the amount required had been received. Mr. Law, however, was desired to procure tenders at once. Several gentlemen put down their names as subscribers, the total amount subscribed on the spot amounting to 315*l.*

DISSENTING CHURCH-BUILDING NEWS.

Meadow Hall (Sheffield).—A new Primitive Methodist chapel, at Meadow Hall, has been opened. The chapel, which is situated in Bard-road, is a plain building. The material used in its construction is a rough local stone. The basement story, consisting of a schoolroom, rises above the level of the street, and the chapel is approached by a flight of steps from either side of the elevation. The dimensions of both rooms are 46 ft. by 37 ft., the chapel being 21 ft. in height, and the school-room 12 ft. The chapel is capable of accommodating about 250 persons, and accommodation is provided in the school-room for about 300 children. The total cost of the building and furniture will be about 1,000*l.*

Earl's Barton.—A new Baptist chapel has been opened here for divine service. The building is of Gothic architecture, and is erected on a site facing the parish church. The front is constructed of Duston stone, with Bath stone dressings. The side walls are of local stone, and the back is of brick. There are side and end galleries; the side being arranged for the children of the Sunday-school, and the end for the choir and senior scholars. The front of the galleries is open woodwork, and it is intended to add to the effect of this by putting behind drapery of scarlet. The roof is of the open kind. The walls are at present in an unfinished state. The seats are of modern description, and for the most part are of pitch pine. The rostrum is constructed of pitch pine, and is ascended by two flights of steps, the balustrades of which are executed in wrought iron. The evening lighting is effected by ten pillar duplex lamps, the standards of which were made by Mr. Mather, of Wellingborough. A minister's vestry adjoins the chapel, and is approached by a convenient side entrance. The chapel is heated by

the hot-air process, and the heating chamber is erected underneath the vestry. The whole has been effected at a cost of something over 1,300*l.*, and towards that sum upwards of 900*l.* has been contributed. The architect is Mr. Edward Sharman, of Wellingborough, and the contractors are Messrs. Burkitt, of Wellingborough, and Messrs. Knight & Simcoe, of Barton.

Clapham.—A new chapel belonging to the Wesleyan Methodists of Clapham has been opened for divine service. It is the only edifice connected with this religious body in the district, and has been erected to supply a manifest want which has been felt for some time by those of the inhabitants who belonged to this denomination. To meet the deficiency, a site in the High-street was purchased, and pending the construction of the chapel, a temporary place of worship was opened in 1872, which had a congregation of about 120 persons. A school-room was finished in September, 1873, and used for services, and the attendance increased to nearly 300. The chapel itself was built by Mr. James Weir, architect. It is of Gothic architecture, with a spire 130 ft. in height, and is composed of Kentish-rag stone. At its extremities are rose-windows, filled in with painted glass. The chapel is capable of holding 1,000 persons. It will cost 10,000*l.*, part of which will be defrayed by the building fund of the denomination, and the rest by subscription. About 3,500*l.* remain to be raised.

Rugeley.—The new Congregational church at Heron Court has been opened for divine service. The original plans have been as closely adhered to as possible. The church is 60 ft. long, 37 ft. wide, and 32 ft. high from floor to ceiling. The seats are all cushioned alike. Gas is laid on, and the chapel is lighted with star lights from the ceiling, and brackets along the sides. Above the rostrum, facing the entrance, are the organ-gallery and choir seats. The organ is being renovated and extended by a local gentleman. The church will be heated by means of hot-air pipes, which are incomplete. They are being supplied by the Albion Iron Foundry Company. Only a portion of Heron Court has been utilised for the purposes of the church; there yet remains a large extent of the work originally laid down by the promoters to be carried out, but when completed the building will present church, schools, and residence all combined, surrounded by extensive grounds. Mr. W. T. Foulkes, of Birmingham, is the architect, and Messrs. T. & H. Brown, of Rugeley, are the builders engaged.

Newland (Lincoln).—The foundation-stones of the New Independent Chapel in Newland have been laid. The old chapel, which was considered inadequate for the accommodation of the congregation, has been converted into school-rooms, in which 600 children are accommodated. The front of the new edifice will be faced with Yorkshire parpoints and Bath stone dressings. The new building will be in the Transition Early English character, comprising central gable, perforated parapet, and five-light traceried windows with single-light traceried windows beneath, divided by pinnacled buttresses, &c. Over the wing to the right will be the tower spire, rising to a height of 120 ft. The interior is divided into a nave and two side aisles, formed by pillars and moulded arches. The ceiling will be formed into parallel apartments by molar ribs rising from carved corbels. The cost of the new building is estimated at between 7,000*l.* and 8,000*l.*, the contractor being Mr. Thomas Lovelee, and the architects Messrs. Bellamy & Hardy, Lincoln.

Stafford.—The Baptist chapel, having been closed during the past three months for extensive alterations and improvements, has now been re-opened for divine worship. The building, which was, perhaps, as unsightly, uncomfortable, and barn-like in appearance as it could well be, has, under the hands of Mr. Chalmers, architect, and Mr. Arthur Gee, builder, &c., been completely transformed. A gallery has been erected at the entrance, underneath which are two large classrooms; the old rostrum has been removed, and a modern platform erected, at the back of which is a new baptistery, 9 ft. long, laid with white Minton tiles. A portion of the chapel has been repewed, and improvements have been made in the lighting, warming, and ventilation of the building. The open roof has been ceiled in, and the walls and ceiling have been decorated. The whole of the decorative work has been done gratis, and is the gift of the builder, Mr. Arthur Gee.

ROMAN CATHOLIC CHURCH BUILDING NEWS.

Ormskirk.—Mr. Roddis, of Birmingham, has just completed a sculptured reredos for the Benedictine Church of St. Anne, Ormskirk. The design consists of five canopied niches, carved, containing statues of St. Scholastica, St. Gregory the Great, St. Benedict, St. Augustine, and St. Placidus, each statue bearing its own emblematic attribute. The materials used are Caen stone, Sicilian marble, and clouded alabaster. The flat surfaces of the latter are engraved in diaper designs, and charged with pale gold. The whole has been executed from the designs of Mr. Edmund Kirby, architect, Liverpool.

Eston.—A school-chapel has been erected and opened for the Roman Catholic portion of the inhabitants of South Bank, near Eston, who, until recently, had to use the drill-shed of the local volunteers. The new school-chapel occupies a corner site on the New Middlesbrough-road, South-bank. The internal dimensions are 70 ft. by 27 ft., and 37 ft. to the bridge. The chancel is 20 ft. by 18 ft., and 32 ft. high; sacristy, 13 ft. by 11 ft.; and class-room, 15 ft. by 17 ft. The whole of the main roof is open timber, pitch-pine, stained and varnished, plastered between the spars, and coloured blue. The chancel-roof is of pitch-pine also, groined with diagonal boards, and varnished. The chancel is lighted by four lancet windows, filled in with quarry glass, diamond pattern. Externally, the building is faced with red-press bricks, having buttresses and stone dressings, with the bell turret in the east gable, and a niche for a statue. Internally, the nave is divided into two bays, with seven recessed arches on each side. The whole of the seats are reversible, and may be used as desks, and have been supplied by Mr. Redmayne, of Sheffield. The altar, which is of pitch-pine, was built by Mr. Sexton, of Middlesbrough. The panels are filled in with chromos, representing the Crucifixion, and the Martyrdom of St. Peter, St. John, and St. Mark. The chancel will be separated from the nave during school by a rood screen having movable shutters. Accommodation is provided for 450 persons. The cost of the building, exclusive of furniture, is a little over 1,500*l.* The whole of the works have been carried out from designs and under the superintendence of Mr. Carr, architect, Middlesbrough.

Middlesbrough.—Amongst the largest and most complete in every respect of the schools here (partly now used as a chapel) are the St. Mary's (R.C.) Schools, which have just been erected in the heart of the town, and opened for use. The site is that of the old windmill, which stood immediately to the rear of the old St. Mary's Schools. The mill was demolished, and on its site now stand the buildings of the new schools. The building consists of three stories. On the ground-floor is the girls' school, the dimensions of which are 81 ft. by 26 ft., and 14 ft. 6 in. high. There is an adjoining class-room, 15 ft. by 18 ft., with teachers' room attached. The first-floor is the boys' school, of similar dimensions and equipments to that of the girls. The accommodation in each room is for 306 scholars. Above the boys' school, and occupying the third story, are rooms specially intended for the accommodation of the Middlesbrough Catholic Association. Five rooms are appropriated for the use of this club, namely, a library, reading-room, amusement-room, and refreshment-room. In the angle of the building there is a tower about 100 ft. in height, in which is the staircase, by means of which access is gained to the upper schools and rooms. The building is erected principally of red brick, in the Early Gothic style of architecture. The total cost of the erection of the premises, exclusive of the furnishing, will be about 2,000*l.* It is intended to use the girls' school, on the same floor, in connexion with the older schools, as a temporary chapel during the time that the proposed adjacent new Catholic church is in course of erection.

Havant.—A new church, to be dedicated to St. Joseph, is in the course of construction at the west end of the town. It consists of a nave and aisles 56 ft. 6 in. in length, the width of the nave and aisles being 18 ft. and 9 ft. respectively, and a chancel 18 ft. 8 in. in length by 17 ft. 6 in. wide. The presbytery is also being erected at the north-east end of the chancel. The walls of both church and presbytery are of flint with stone dressings. The high altar for the church is being executed by Messrs. Farmer & Brindley, of Westminister-bridge-road, and represents incidents in the life of St. Joseph, carved in stone, with marble pillars, the tabernacle being in alabaster. Mr. Stallard is the builder, and Mr. Farmer clerk of the works.

SCHOOL BUILDING NEWS.

Wednesfield.—About the beginning of last year the Education Department sent to Wednesfield a notice showing the deficiency of school accommodation in that parish, and stating that unless some steps were taken to provide for the deficiency, a School Board would have to be formed. The deficiency was shown to be such that a school for 170 children was required at Moseley Hole, one for 170 children at Wednesfield and New Cross, and one for 140 children at Wood End. The Rev. W. Stephens (the vicar) and various of his friends, being desirous of avoiding the necessity for the formation of a School Board in the parish, they have undertaken to build the three schools required. The memorial stone of the school at Wood End was laid by the Countess of Dartmouth. It is to form a branch of the Wednesfield School, and the proposal is, that it shall be kept for young children and infants, the older pupils attending the schools at Wednesfield. The accommodation will be as required, namely, for 140 children; and, towards the cost, grants have been promised by the Education Department, the National Society and the Diocesan Society, and donations have been promised. The land upon which the schools will be built is the gift of the Duke of Sutherland. The erection will be by Mr. Rollason, of Wolverhampton, according to the plans of Mr. John Bate, jun., of Wednesfield.

Wimbledon.—A set of schools for boys, girls, and infants has been opened near the Wimbledon Railway Station, in order to meet the requirements of the Government Inspector to provide additional accommodation for the children in the parish. Among other speakers at the meeting was Sir Bartle Frere. The schools will contain nearly 400 children, and have been built by means of voluntary subscriptions, as a School Board was not thought advisable in the parish.

Norbury, near Bishop's Castle.—The school near this village, built by the late Mrs. Scott, of Stourbridge, has been formally opened. The school is built of Norbury and Bath stone, in the plain west of the Stretton Hills, where it is conspicuous for a long distance. It is not the first new school built by the same family in Shropshire, a school of almost equal pretension having been previously built by Mr. J. C. Addiges Scott at Ratlinghope.

Miscellanea.

The Sanitary Condition of Lostwithiel.—A report on the sanitary condition of Lostwithiel has been presented to the Rural Sanitary Authority of the Bodmin Union by Mr. T. Mudge, medical officer of health. In this report he says:—"Our inspection includes Lostwithiel proper and the portion of the town in the parishes of Lanlivery and St. Winnow. We find in both the latter no drainage, foul offensive deposits of black filth near and about the houses, an open leat receiving the contents of house drains, privies, slaughter-houses, and other offensive matters, and, in fact, everything that ought not to be in a sanitary view. In Wesley Town there are twenty-three houses without a closet or privy of any description. Many of the houses having gardens, and a supply of earth being so easily obtained, earth-closets will prove to be of the greatest advantage. The water supply is poor, the spring where any pure water is to be had being a considerable distance from the houses, and the stream very small; river water is used for some purposes. . . . . It is easy to account for the great mortality that has existed here from measles, scarlet fever, small-pox, and other zymotic diseases. By the adoption of improvements planned by your inspector a great saving of human lives may be effected, and a large amount of suffering and poverty also prevented."

The Sewerage of Lincoln.—Notwithstanding the strong opinion expressed by several members of the Town Council that Lincoln is one of the healthiest cities in the kingdom, we have to record the fact that fever is at the present time rife amongst the inhabitants.

Lead in Aërated Waters.—Dr. Milne thus writes to the *Glasgow News*:—"During the present week I have completed the examination of seven other samples of aërated waters obtained in Glasgow, the result being that lead was found in all of them. The following are the amounts found:—A sample of lemonade manufactured in Glasgow gave ·2 grain per gallon; a sample of lemonade (no label on bottle, gave ·05 grain per gallon; another sample of lemonade (no label), gave ·4 grain per gallon; a sample of gingerade (no label), gave nearly ·1 grain per gallon; a sample of soda-water, manufactured by a well-known Glasgow firm, gave no less than ·6 grain, and a sample of lemonade from the same firm gave ·05 grain per gallon; lastly, a sample of soda-water, also manufactured in Glasgow, gave rather over ·05 per grain per gallon. While the use of some of the waters mentioned above ought certainly to be condemned, that of one or two of the others is, perhaps, open to less objection. It is well known, however, that in the peculiar condition of the system known to toxicologists as idiosyncrasy an amount of lead which, under ordinary circumstances would be without effect, may produce marked symptoms of poisoning. There is, I think, no doubt that, as regards some of the samples referred to, the contamination occurs during the manufacture; and I quite agree with a correspondent who says "that there is no reason why aërated waters should not be manufactured entirely free from lead," a suggestion which I commend to the notice of the makers of these beverages."

Water-supply, Galashiels.—Two rival companies are proposing to supply Galashiels with water. One of them, says the weekly *Scotsman*, is, we believe, the same company that proposed to supply water to Edinburgh from Manor, and has Mr. Stewart for engineer. This company proposes to bring water to Galashiels from Luggate; but the exact terms have not as yet been made public. A proposal from another source was issued on Friday week, in which it is contemplated to bring water from Caddon, at the estimated cost of 15,240*l.*, exclusive of compensation for the abstraction of the water and for land. This is to supply forty gallons per head per day to 20,000 inhabitants. The proposed clear-water basin is to hold 3,000,000 gallons, and the town cistern 300,000 gallons. The proposal is, to draw the water from a stream at a point in the neighbourhood of Windydoors, and to convey it along the slopes of the Caddon and Meigle hills to the distributing reservoirs situated above the Windyknowe-road on the 600 ft. contour Ordnance survey. The quality of the water is stated to be unexceptionable, and to be derived from a gathering area of eight square miles of almost wholly uncultivated land. The length of pipe-track is 6¼ miles. Mr. Bell is engineer for this scheme.

Proposed New Public Hall for Tonbridge. The town of Tonbridge has been *en fête*, on the occasion of the laying of the foundation-stone of the new Public-hall of the Tonbridge Public Hall Company, on a suitable site, at the upper end of High-street. The capital of the company is 6,000*l.*, and the estimated cost of the building is 4,093*l.* The building, which will be erected from plans prepared by Messrs. Cattermole & Eade, architects, of Ipswich, will be in the Gothic style of architecture of the Decorated period. The building will have a frontage of 61 ft., and at the upper end there will be a tower 74 ft. in height, with an aperture for clock, and at the top of the tower will be an iron cresting. The great hall will be in the rear of shops, and 24 ft. from the High-street, so that the noise arising from traffic, &c., will be shut out; it will be 69 ft. by 39 ft. 6 in. wide, with platform, under a recess, 20 ft. 8 in. by 10 ft. 3 in., and, taking the gallery into consideration, it is computed that the hall will accommodate 700 persons. The hall will be lighted on either side by five windows, 8 ft. 6 in. from the ground; there will be two sun-lights. The heating will be by means of a hot-air apparatus. The builder is Mr. Samuel Woods, Weybridge: Mr. N. E. Trevena, clerk of the works.

A Memorial Church. — The foundation-stone of the new church about to be erected as a memorial of the Rev. George Fisk, late vicar of Malvern, was laid last week by Lady Emily Foley. The edifice will accommodate 800 persons, the cost being estimated at between 6,000*l.* and 7,000*l.* It is Gothic in style, from the designs of Mr. Barry, of Liverpool.

Lamp-Lighting Extraordinary.—Some engineers in Baden have contrived an ingenious piece of mechanism, which has already been adopted in some of the public buildings and streets in Heidelberg. The object, says the *Globe*, is to provide for the simultaneous lighting of all the gaslights of the town. This has been done both in Paris and with us at the Albert Hall, by the use of an electric wire; but the German engineers have invented a method more simple and durable. Their apparatus can be affixed equally to all gas-jets, and it is made to act, not by any special mechanism, but simply by the increased pressure of the gas, which is always laid on from the gasometer when the lamps should be lighted. The one act of turning on the gas at the main ignites it at all the burners fitted with the new apparatus. When the pressure is diminished at the main the gas can either be totally extinguished or let down to a thread. It is chiefly in the lighting of the streets of a town that the invention will be of practical use. Directly the gas is turned on, the whole city will be simultaneously illuminated, and when in the early morning the pressure is reduced the light may be totally extinguished or gradually diminished. The pipes must be better laid than they are in London!

Kill 'em Alive!—A receipt for the destruction of insects, which, if it be one-half as efficacious as it is stated to be, will prove invaluable, is published by the *Journal of Chemistry*. Hot alum-water is the suggestion as an insecticide. It will destroy red and black ants, cockroaches, spiders, chintz bugs, and all the crawling pests which infest our houses. "Take two pounds of alum and dissolve it into three or four quarts of boiling water; let it stand on the fire till the alum disappears; apply it with a brush, while nearly boiling hot, to every joint and crevice in your closets, bedsteads, pantry-shelves, and the like. Brush the crevices in the floor of the skirting or mop boards, if you suspect that they harbour vermin. If, in whitewashing a ceiling, plenty of alum is added to the lime, it will also serve to keep insects at a distance. Cockroaches will flee the paint which has been washed in cool alum water."

Belgian Competition in the Iron Trade.—Mr. C. W. Milne, Exchange-buildings, Birmingham, sends to the local *Post* a note received by him from Hull, stating that a Belgian firm, the Acoy Plant Company, has carried off from English competitors a contract for 2,000 tons of iron for Rotterdam; and that other Belgian firms have received orders for 3,000 tons of machinery plant, also for Holland; the whole of which, according to precedent, should have been ordered from English houses. This diversion of trade is, he adds, attributed to the still unsettled state of the English markets. Our own Admiralty, we may add, apparently contemplate inviting Belgian ironmasters to compete for the iron required in the Navy yards. At least they have sent over Mr. Russell, the Superintendent of Contracts, to investigate the Belgian iron markets.

Cork School of Art.—About two years since an instance of the success of Cork students was recorded when Mr. Jeremiah Mullins carried off the silver medal of the Guild of Coachmakers, in open competition with the artizans of the United Kingdom, and last year at the Technological examinations, under the Society of Arts, Mr. T. Mullins was awarded a scholarship of 50*l.*, entitling him to attendance at the Queen's College for scientific instruction. In the *Journal of the Society of Arts* just issued, appears a further instance of the success of the Cork students, viz.:—In carriage building, Mr. Jeremiah F. Mullins, first Elementary, with a prize of 5*l.*; Matthew Mullins, second advanced. In steel manufacture, Thomas Fleming and James Pulvertaft, second Elementary.

Ventilation of Cottages. — The Rural Sanitary Authority of the Wheatenhurst Union have done good service by issuing a public notice calling the attention of owners of cottages and others to entries in reports which they have received from their medical officers of health. Dr. Eshelby, officer of the Haresfield district, states with reference to cottages in that district:—"One fault is very common,—the bedroom windows not being made to open, rendering it impossible to ventilate the room properly, and, in case of illness, debarring the patient from the fresh, cool air, which is so essential, and often rendering the office of nurse or attendant both disagreeable and dangerous."

Something Like a Granary. — In the resuscitated city of Chicago, amongst other gigantic buildings just completed is the granary of Armour & Dole, which is named the New Chicago Elevator. It measures 312 ft. by 100 ft., is 62 ft. high, has thirty bins, holding 1,500,000 bushels of corn, and floor capacity for 250,000 bushels, making a total capacity of 1,750,000 bushels. There are twenty-two elevators or hoists, with twenty-two 500-bushels hopper scales. The building cost 300,000 dols. for the work and materials alone. The nearest granary in England approaching the above is we believe at Newark, but the Chicago one is double the size. The wheat is stored for export to this country, but owing to our own bountiful harvest Chicago will have some difficulty in selling it this year.

Middle Temple Library.—Travellers on the Thames Embankment will observe alterations and improvements in the general structure of the library. The flues have been a continual source of annoyance. To obviate this a number of huge and unsightly iron tubes were, a short time ago, carried across the roof of the library, quite spoiling its appearance. These, after all, have turned out useless, and now the Benchers, at a cost of over 1,000*l.*, are engaged in running up new stacks of stone chimneys, springing from buttresses, to a height of 27 ft. above the battlements, and 3 ft. above the ridge. Two new windows are being constructed. The works are being carried out by Messrs. Patman & Witheringham, under the supervision of the Clerk of Works to the Benchers of the Middle Temple.

School Board School for Chiswick.—A new building has been erected by the London School Board in the parish of Chiswick. Although the parish is a large and opulent one, and affords many educational advantages, there is one portion of it lying backwards towards the Brentford-road, which is in so unsatisfactory a state as peremptorily to demand action on the part of the Board. The new school-house is situate close to the railway, on which trains run every few minutes, and this, it is thought, may prove some disadvantage. Arrangements will be made for opening the new buildings, which are nearly completed, with as little delay as possible.

Swindon.—Messrs. Deacon & Liddiard, of the Vale of White Horse Repository, at Swindon, have just added considerably to their premises. The new stabling is 28 yards long, 13 yards wide, and is capable of standing forty-four horses. Mr. W. H. Read was the architect. The ventilation is mainly from the roof by turret-like ventilators. The ventilation can be governed to suit the temperature. The stalls are of pine, lined with elm, a non-splintering wood, where horses might possibly kick. The contract has been carried out by Mr. George Wiltshire, of Swindon. Other additions and improvements have also been made.

The Embankment at Westminster.—The preliminary operations, with a view to the construction of an embankment, are being carried out on the cleared portion of the ground which reaches to Wood-street, and the outer piles are being driven down preparatorily to the fixing of the coffer-dams. A large number of men are employed on the work, which is being actively pushed forward. The outer wall of the embankment will run almost in a straight line with that of the terraces of the Houses of Parliament. Eventually, the embankment will be extended to Lambeth-bridge.

Election of Inspector of Nuisances at Launceston.—At a meeting of the Launceston Sanitary Authority, held at the Union Workhouse on Saturday, Mr. J. C. B. Lethbridge in the chair, the election of an inspector of nuisances for the sanitary district of Launceston Union, with the exception of the Local Board of Health district, was proceeded with. There were nine candidates, and after several rounds Mr. William Coombe, jun., of Launceston, was elected at a salary of 35*l.* per annum! Area, 87,877 acres; population, 17,142 in 1871.

Builders' Machinery.—At the Manchester and Liverpool Royal Agricultural Society's show, held this month at Staleybridge, Messrs. F. W. Reynolds & Co., of Southwark-street, London, were awarded the society's silver medal for wood-cutting machinery. They also took a silver prize medal at the Bellevue show, held at Manchester; and the Northamptonshire Agricultural Society awarded them a bronze medal last week.

The Pottery Tree of Para is one of the curiosities of Brazil. The stem does not exceed a foot in diameter, and it grows to the height of 100 ft. But the peculiarity of the tree does not consist in its configuration, but in the nature of its wood and bark, which contains so much silica that they are used by potters in the production of earthenware vessels. The bark contains more silica than the wood, and in preparing the bark for the potter's use it is first burnt, and the residuum is pulverised and mixed with clay. An equal quantity of the two ingredients produces a superior ware. The fresh bark cuts like soft sandstone, and when dried it is brittle and hard.

Manchester Art Exhibition.—The annual exhibition of paintings has been opened at the Manchester Royal Institution, and shows a great improvement upon its predecessors of some years past. The number of works offered for exhibition was about 1,500, many of which must have been rejected solely on account of the impossibility of finding room for more than 700. The collection includes Miss Thompson's "Roll Call," which is fully appreciated in Manchester.

Proposed Aquarium for Eastbourne.—It is rumoured that Eastbourne is to receive another addition to its numerous attractions, in the shape of an aquarium. The promoters of the project, it is said, have visited Eastbourne, secured a site near the Baths from the Duke of Devonshire, and the plans are in preparation at the hands of Messrs. Currey, the Duke's town agents.

Deterioration of Coal.—M. Varrentrass has made some important experiments on the effects of exposure to the air on coal which show that the loss in weight sometimes amounts to one-third, and that the loss of power is much greater even than that. The loss of weight is due to the slow combustion of the volatile parts of the coal, of which the proportion gradually diminishes in comparison with that of the carbon, ashes, and sulphur.

Battersea Burial Board. — Mr. Albert Thomas Ackerman, who for the past seven years has been one of the Charge Officers of the Surrey County Lunatic Asylum, Tooting, has been elected superintendent to the Battersea Cemetery. There were upwards of 200 applicants. This is the first alteration that has occurred since the Government Inquiry took place some few weeks since.

London International Exhibition. — A lecture on ancient and modern bookbinding will be delivered to the members of the Working Men's Club and Institute Union, on Saturday, (this) 26th inst., in the West Theatre of the Albert Hall, by Mr. Henry T. Wood. After the lecture, the visitors will inspect the collection of Examples of Bookbinding in the Exhibition.

Proposed Gymnasium for Shrewsbury.—A movement has been set on foot in Shrewsbury for establishing a public gymnasium for the town, and the largeness of the attendance at a public meeting which has been held in the Music Hall Buildings, to take preliminary steps in the matter augurs well for the future success of the movement.

A New Blind Cord.—Mr. Leedham Binns, Okenshaw, near Bradford, has invented a blind-cord which is without join of any kind, and he is thus enabled to do away with the old-fashioned rack and pulley, having registered a very simple invention in its place, one which will not get out of order and can be guaranteed to last for years. —*The Draper.*

The Highest Spire in Europe.—Strasburg Cathedral is now beaten. It no longer has "the highest spire in Europe." The new church of St. Nicholas, Hamburg, has just been finished, and the great cross was placed on the summit. The total height is 472 ft. This is called 6 ft. higher than Strasburg.

Wood's Patent Mortar, Cement, and Concrete.—This specification, dated 7th October, 1873, describes forming mortar, cement, and concrete, by combining slag, sand, or granulated slag with iron ore and either quick lime or hydraulic lime or cement, or in lieu of iron-stone or iron ore refuse pyrites may be used.

Outbreak of Typhoid Fever at Walker.—At the monthly meeting of the Walker Local Board, Dr. Lownds, medical officer of health, said that typhoid fever was spreading in the district.

TENDERS

For building new premises, for Messrs. Debenham, Tewson, & Farmer, at Nos. 1 and 2, Bucklersbury. Mr. J. Whichcord, architect:—

	Including Fittings.
Ashby & Horner	£8,305 0 0
Macey	7,698 0 0
Turner & Son	7,648 0 0
Browne & Robinson	7,490 0 0
Hill, Higgs, & Hill	7,488 0 0
Faulkner	7,280 0 0
Rudkin	7,225 0 0
Kelly, Brothers	7,120 0 0
Scrivener & White	6,992 0 0
Killby	6,894 0 0
Shurmur	6,837 0 0
Mortar	6,739 0 0
W. & F. Croaker	6,504 0 0
Somerville & Smith	6,458 0 0
Merritt & Ashby	6,404 0 0
Brass	6,396 0 0
Newman & Mann	6,376 0 0
Bland	6,174 0 0
Lacey	6,159 0 0

For rebuilding the Flask Tavern, Flask-walk, Hampstead. Messrs. Cumming & Nixon, architects. Quantities supplied:—

Hill, Higgs, & Hill	£3,468 0 0
Gammon & Sons	3,437 0 0
Downs	3,190 0 0
Carter & Son	2,997 0 0
Hart	2,880 0 0
Cullum	2,795 0 0

For alterations and repairs to the Victoria Hotel, Chester-place, Hyde Park-gardens. Messrs. M'Nab-Soul & Pritchett, architects:—

Moreland & Nixon	£588 0 0
Hossowski	515 0 0
Blackmore & Morley	457 0 0
Walton & Son	427 0 0
Temple & Forster (accepted)	424 0 0
Bar-fittings.	
Hill (accepted)	£640 0 0

For new mission chapel, Tottenham-square, Kingsland. Mr. H. H. Bridgman, architect:—

Knight (accepted)	

For three new shops, High-street, Camden-town, for Mr. Charles Slade. Mr. H. H. Bridgman, architect:—

Knight (accepted)	

For alterations at the Queen's Arms, Hackney-road, for Mr. B. Philips. Mr. Edward Brown, architect:—

Marr	£198 0 0
Thomerson	199 0 0
Blackmore & Morley	193 0 0
Impey (accepted)	172 0 0

For alterations and repairs at the Van Trump, Bethnal-green-road, for Mr. Arno. Mr. Edward Brown, architect:—

Blackmore & Morley	£138 8 6
Marr	134 3 0
Pringle (accepted)	129 13 6

For alterations at the Duke of Wellington, North-street, Whitechapel, for Mr. Argent. Mr. Edward Brown, architect:—

Impey	£268 0 0
Palmer	225 0 0
Pringle	213 0 0
Hearle	204 0 0
Blackmore & Morley	169 0 0

For proposed new ward for children, at the Infirmary, Salisbury. Mr. John Harding, architect. Quantities supplied by Messrs. Williams & Taylor:—

Adey	£4,761 0 0
Plowman	4,484 0 0
John Crook	4,195 0 0
Thornton & Conduit	4,169 0 0
Cole	3,988 0 0
C. C. Crook	3,953 0 0
Bull & Sons	3,810 0 0
Wagner	3,773 0 0
Hall (accepted)	3,700 0 0

For schools, master's house, Board-room, offices, and boundary-walls, &c., at Brynmawr, Breconshire, Wales, for the Llanelly School Board. Messrs. Alexander & Henman, architects. Quantities supplied by Mr. Charles Henman:—

Everal	£7,840 0 0
Jones & Allen	7,110 0 0
Messrs. Davies	6,900 0 0
Welsh & Son	6,600 0 0
Foster, Brothers (accepted)	6,300 0 0

For new police-station, at Blaina, Monmouthshire. Mr. W. P. James, architect. Quantities supplied:—

Hawkins	£2,750 0 0
Everal	2,730 0 0
Coleman, Brothers	2,500 0 0
Foster, Brothers	2,235 0 0
Jones	2,197 0 0
Phillips	2,106 0 0
Thomas	2,051 0 0
Burgoyne	1,998 0 0

Accepted for works at Crockford's, St. James's-street, for the New Liberal Club. Mr. C. J. Phipps, architect:—

General Builder's Work.	
Newman & Mann	£1,685 0 0
Carton-Pierre Work to Ceilings, &c.	
Jackson & Sons	£370 0 0
Plumbing.	
Smeaton	£170 0 0
Kitchen Apparatus, Hot-water Supply, Steam Boilers, Baths, &c.	
Jeakes & Co.	£1,368 0 0
Decorations and Painting.	
Bell	£650 0 0
Sunlight and Gaswork.	
Strode & Co	£73 0 0
Lifts.	
Waygood & Co.	£118 0 0

For the reconstruction of the Worcester Theatre. Mr. C. J. Phipps, architect:—

General Builder's Work.	
Newman & Mann	£2,725 0 0
Wood & Sons	2,359 0 0
Wells	2,247 0 0
Dixon (accepted)	2,000 0 0
Decorations.	
Bell (accepted)	£250 0 0
Act Drop and Part of Scenery.	
Gordon & Harford (accepted)	£100 0 0
Sunlight and Gaslights.	
Strode & Co. (accepted)	£65 0 0

For the erection of a new warehouse, on the site of No. 57, Knightrider-street. Mr. John Wimble, architect. Quantities supplied:—

Hoare	£1,607 0 0
Newman & Mann	1,556 0 0
Croaker	1,497 0 0
Scrivener & White	1,476 0 0
Mortar	1,458 0 0
Faulkner	1,446 0 0

For alterations to No. 66, Knightrider-street. Mr. John Wimble, architect. Quantities supplied:—

Hoare	£704 0 0
Newman & Mann	638 0 0
Scrivener & White	630 0 0
Mortar	617 0 0
Croaker	610 0 0
Faulkner	606 0 0

For sundry works, in alterations and repairs, to the Plough Tavern, No. 55, Fore-street, City, for Mrs. Bell. Messrs. Bird & Walters, architects. Quantities supplied:—

Newman & Mann	£498 0 0
M'Lachlan	488 10 0
Mark	436 0 0
Brown	429 0 0
Thompson & Smith	420 0 0
Ebbs & Son	419 0 0

For new schools, in Sumner-road, Lambeth, for the School Board for London. Mr. Robson, architect. Quantities supplied by Mr. W. F. Meakin:—

Ennor	£9,038 0 0
Newman & Mann	8,989 0 0
Cooper	8,670 0 0
Pritchard	8,591 0 0
Wood	8,218 0 0
Perry & Co.	8,100 0 0
Brass	8,097 0 0

For alterations at No. 51, Berners-street, Oxford-street, for Messrs. Schweppe & Co. Mr. E. C. Robins, architect. Quantities supplied:—

Newman & Mann (accepted)	£690 0 0

For alterations and additions at Downes Bury, Stecles-road, Haverstock-hill. Mr. S. Hewitt, architect. Quantities not supplied:—

Newman & Mann	£425 0 0

For stables, coachhouse, and alterations at Wellington Lodge, Surrey, for Mrs. Lumb. Mr. C. A. Beasley, architect. Quantities supplied by Mr. F. F. Mallett:—

Adamson & Sons	£1,325 0 0
Coles	1,268 0 0
Hide	1,260 0 0
Nightingale	1,239 0 0
Hazell	1,236 0 0
Keal	1,203 0 0
Newman & Mann	1,198 0 0
Bays & Ramage	1,169 0 0

For pulling down and rebuilding Nos. 12 and 13, Poultry, in the city of London, for Mr. Sadler. Mr. F. Chancellor, architect. Quantities supplied by Messrs. R. L. Curtis & Sons:—

Perry & Co.	£2,650 0 0
Rider & Son	2,520 0 0
Conder	2,429 0 0
Brown	2,427 0 0
Bland (accepted)	2,183 0 0

For branch establishment, at Margate, of the Asylum for the Deaf and Dumb, Old Kent-road, London. Quantities by Mr. C. A. Gould. Messrs. Drewe & Bower, architects:—

Bushell & Sons (accepted)	£13,000 0 0

For building a hall and offices, at Margate, for the Ancient Order of Foresters, Court Hunterian No. 2,987. Messrs. Drewe & Bower, architects. Quantities by Messrs. Gardiner, Son, & Theobald:—

Paramor & Son (accepted)	£2,175 0 0

For additions to the Junction Hotel, Didcot, Berkshire, for Mr. E. Wells, M.P. Messrs. Drewe & Bower, architects:—

Jones (accepted)	£320 0 0

For a convalescent home, at Margate, in connexion with the Orphan Working School and the Alexandra Orphanage for Infants, for Mr. Joseph Soul (founder). Messrs. Drewe & Bower, architects. Quantities by Messrs. Gardiner, Son, & Theobald:—

Colls & Son	£3,344 0 0
Boden	2,080 0 0
Paramor & Son	2,058 0 0
Bushell & Sons	1,995 0 0

For drainage to forty-five cottages, at New Swindon. Mr. W. H. Read, architect:—

Adams & Co.	£450 0 0
Dover, Son, & Co.	385 0 0
Dunmore (error of 33*l.*)	353 0 0
Groome	350 0 0
Hamblin (too late)	350 0 0
Dickenson	321 0 0
Bennett & Holley	307 0 0
Riley	243 0 0
Peacock	241 0 0
Potter	225 0 0
Seed	225 0 0
Forshaw (too late)	205 0 0
Haynes	193 10 0
Wiltshire (accepted)	190 19 0